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Randomized Clinical Trial of Motivational Enhancement of Substance Use Treatment Among Incarcerated Adolescents: Post-Release Condom Non-Use

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Abstract

Evaluated impact of motivational enhancement (ME) of substance abuse treatment compared to relaxation training (RT) on sex without condoms (overall and involving substance use) 3 months following release among incarcerated adolescents. This randomized clinical trial involved 114 incarcerated adolescents from the Northeast. Regression analyses determined if treatment condition, baseline levels of depressive symptoms, and their interaction predicted condom non-use 3 months post-release, controlling for baseline condom non-use. Among those who reported fewer baseline depressive symptoms, those in ME condition reported significantly less condom non-use, in general and involving marijuana use compared with those in RT condition. Periods of incarceration represent opportunities to help juvenile detainees reduce behaviors that impact their health and the health of those with whom they interact in the community.

Keywords

Adolescents; motivational enhancement; substance use; condom non-use; incarcerated populations

Background

Adolescents who are involved in the juvenile justice system are at a higher risk of sexually transmitted diseases (including HIV/AIDS) and unplanned pregnancies than their non-delinquent peers. Various studies of incarcerated adolescents have found that they report initiating sexual intercourse at early ages (American Academy of Pediatrics' Committee on Adolescence, 2001; Peres et al., 2002), high numbers of lifetime and recent sexual partners (Bryan & Stallings, 2002; Magura, Kang, & Shapiro, 1994), inconsistent use of condoms (Nagamune & Bellis, 2002; Rickman, Lodico, & DiClemente, 1994), and experimentation with anal intercourse (Gilmore, Morrison, Lowery, et al., 1994; Magura et al., 1994). In addition, teens who are incarcerated are more likely to report exchanging sex for drugs, for money or for meeting other needs (Wood & Shoroye, 1993) and having sex while under the influence of alcohol or drugs (Magura et al., 1994; Morris, Baker, Valentine, & Pennisi, 1998; Otto-Salaj, Gore-Felton, McGarvey, & Canterbury II, 2002) than non-incarcerated adolescents. Incarcerated adolescents report involvement in sexual behavior at earlier ages than non-delinquent adolescents (Morris et al., 1995). A study of 39 correctional facilities in U. S. in 1991 found that by the age of 12, 62% of juvenile detainees reported onset of sexual intercourse, and that by age 14, 89% were sexually active (Morris et al., 1995). A recent study of condom use in incarcerated males found that the average age of sexual debut was 12.9 years of age (Bortot, Risser, & Cromwell, 2006). These figures can be contrasted with recent findings among non-incarcerated adolescents that by the end of 9th grade (age 15-16) more than one third have had sexual intercourse and that by 12th grade (age 17-18) nearly two-thirds have become sexually experienced (Center for Disease Control and Prevention, 2002). A recent study found that more than 60% of detained male youth and more than 25% of female youth reported more than one sexual partner in the past 3 months and nearly 40% of males reported more than 3 partners in the past 3 months (Teplin, Mericle, McClelland, & Abram, 2003). The majority of detained youth in another sample reported 4 or more lifetime partners and many reported having more than 20. Fewer than 50% of these respondents reported using condoms during their last episode of intercourse (Morris et al., 1995). In addition, teens who are incarcerated are more likely to report exchanging sex for drugs, for money or for meeting other needs (Wood & Shoroye, 1993) and having sex while under the influence of alcohol or drugs (Magura et al., 1994; Morris et al., 1998; Otto-Salaj et al., 2002) than non-incarcerated adolescents.

Many, if not most, incarcerated adolescents have experience using substances (primarily alcohol and non-injection drugs). Out of approximately 2.4 million juvenile arrests each year, more than 203,000 are for offenses related to substance use (Snyder, 2002). As is true for many sexually active populations, heightened levels of sexual risk behavior occur in combination with substance use and intoxication among adolescent detainees (Devieux et al., 2002; Gary et al., 2000; Harwell, Trino, Rudy, Yorkman, & Gollub, 1999; Kingree, Braithwaite, & Woodring, 2002). One study (Castrucci & Martin, 2002) found a strong association between regular substance use and sexual risk (including multiple sex partners, inconsistent condom use, and trading sex for money or drugs) among their sample of incarcerated adolescents. Their findings suggest that regular use of two or more substances was associated with reports of multiple partners, exchange of sex for money or drugs, and inconsistent condom use. Seventy-five percent of the sample reported use of two or more substances in the past 30 days (Castrucci & Martin, 2002). An examination of unprotected sex as a function of alcohol and marijuana use among adolescent detainees found that marijuana use was associated with unprotected

sexual intercourse. This relationship held when the behaviors were measured in general or specifically with reference to the last episode of sex (Kingree et al., 2002). A final study found that sexual risk behaviors among a sample of incarcerated youth were more common in the presence of marijuana than alcohol, especially higher risk behaviors (i.e., sex with someone not known well and sex without a condom) (Rosengard et al., 2006).

Co-occurring substance use problems and psychiatric illnesses are widespread among incarcerated adolescents (Crowley & Riggs, 1995; Otto-Salaj et al., 2002). Grella and colleagues (Grella, Hser, Joshi, & Rounds-Bryant, 2001) examined over 900 adolescent drug abuse clients (outpatient and inpatient) and 15% had a history of depression. Jainchill and colleagues (Jainchill, DeLeon, & Yagelka, 1997) examined over 800 adolescents from therapeutic communities and found current rate of major depression of 21%. In a sample of over 1,800 juvenile detainees, the rate of depression was 13% (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). Because depression can influence how individuals respond to therapeutic interventions (Hosek, Harper, & Domanico, 2005; Panichelli-Mindel, Flannery-Schroeder, Kendall, & Angelosante, 2005), it is especially important to consider depressive symptomatology and negative affect in any evaluation of a treatment approach.

A 1999 study reported that fewer than 60% of the facilities that house detained adolescents in the United States provide any form of HIV prevention education (Harwell et al., 1999). More than 75% of juvenile detention facilities provide substance use education and awareness training, more than 60% assess need for substance use treatment, and just over 40% make 12-step and other self-help programs available to residents during periods of incarceration (SAMHSA, 1997). A recent treatment approach that has been found efficacious in altering a variety of health-compromising behaviors, including substance abuse, is motivational interviewing or motivational enhancement (MI or ME) therapy (Burke, Arkowitz, & Dunn, 2002). Elements of brief interventions such as motivational interviewing include an empathic non-confrontational approach, emphasis on personal responsibility and choice, feedback about effects of the behavior, advice to change, a menu of alternative change methods, and increasing self-efficacy (Miller, Sovereign, & Krege, 1988).

Given the numbers of incarcerated adolescents who report risky sexual behavior and substance use, often with co-morbid mental health issues, as well as the availability of substance abuse assessment and treatment, the current project, part of a larger study assessing motivational enhancement of substance use treatment, sought to evaluate levels of condom non-use behavior 3-months following release from incarceration among adolescents who were either assigned to relaxation training (RT) or motivational enhancement (ME) of substance use treatment during the time of their incarceration. Specifically, we hypothesized that 3-months following release from incarceration, those adolescents assigned to ME of substance abuse treatment would report (1) less overall sex without a condom; (2) less condom non-use that involved alcohol use; and (3) less condom non-use that involved marijuana use than those assigned to RT treatment. Since we were particularly interested in examining the impact of signs of depression/negative affect at incarceration on participants' responsiveness to treatment, we included baseline levels of depressive symptomatology as an independent variable and in combination with treatment assignment.

Methods

Participants

The sample was recruited at a state juvenile correctional facility in the Northeast between April of 2001 and August of 2003. It is the state's sole juvenile correctional facility and charges of teens at the facility range from simple truancy to murder. About 1,000 to 1,200 teens per year are detained at the facility, about 500 to 600 teens per year are adjudicated to the facility (75%

of whom receive sentences between 4 and 12 months), and annual recidivism is about 35%. Teens receive group treatment as well as individualized attention (as indicated) on a variety of topics (e.g., sex-offending, drug dealing, reducing crime, developing empathy, preventing violence, anger management). Adolescents routinely attend an eight-week psycho-educational group treatment for substance use/abuse that meets twice per week for an hour (Standard Care). Enrollment usually begins shortly after adjudication. Medical, dental, psychiatric, and psychological care is available to teens, and the facility houses its own education department. More in-depth substance abuse services are available as indicated, and Alcoholics Anonymous and Narcotics Anonymous are also available on a weekly basis. Community religious organizations also have a relationship with the facility. Limited vocational programming is available for teens, as are transitional services that include substance use counseling, case management, mentoring, and other services.

Procedures

Screening and consent—Immediately after adjudication teens were identified as potential candidates for the study if they were between the ages of 14 to 19 years (inclusive) and were sentenced to the facility for between 4-12 months (inclusive). Consent was obtained from legal guardians and assent was obtained from adolescents. Guardians and adolescents were informed that all information was entirely confidential, except for plans to escape, hurt self or others, or reports of child abuse. Adolescents were included in the larger study if they met any of the following substance use screening criteria: (1) in the year prior to incarceration they used marijuana or drank at least monthly; (2) during the year prior to incarceration they drank 5 or more standard drinks for boys or 4 or more for girls on any single occasion; (3) they used marijuana or drank in the 4 weeks before the offense for which they were incarcerated; or (4) they used marijuana or drank in the 4 weeks before they were incarcerated. All procedures utilized received Brown University's Institutional Review Board and the facilities' internal review board approval.

Over the course of the study, approximately 1165 incarcerations took place (representing 758 unique adolescents, taking recidivism rates into account). Seventy-five percent of residents receive sentences between 4 and 12 months, resulting in 569 residents, of which 98% were expected to meet our substance use inclusion criteria, resulting in 562 potential participants for the larger study. Due to limited research staff time, we were able to approach 120 adolescents (21.4% of potential participants) for participation in the study. Of these 120, 117 met screening criteria and completed our consent procedure. All initially agreed to participate, leaving a baseline sample size of 117 participants. For our analyses, 114 adolescents completed 3-month follow-up assessments. Three participants could not be found for follow-up appointments (lost to follow-up). There did not appear to be any significant differences between those who completed a 3-month follow-up assessment and those who were lost to follow-up on any of the sexual risk variables.

Assessments—The baseline assessment occurred shortly after adjudication and consisted of a 90-minute interview by a trained BS or MA-level staff member. Interviewers were not gender-matched to participants. Three-month follow-up interviews lasted for 60-minutes and were conducted in the community, 3 months following release from the facility. Interviewers had at least 20 hours of training with 1 hour of individual and 1 hour of group supervision per week. Supervision of interviews was conducted regularly by a PhD-level project member. All assessment data were reviewed by a MA- or PhD-level project member. Record reviews were completed following completion of the interviews. Adolescents received snacks during assessments and a \$50 gift certificate for completion of the study.

Intervention conditions—Following the baseline assessment, participants were randomized using a random-number table to either relaxation training (RT) or motivational enhancement (ME) groups. RT consisted of one-on-one relaxation training that focused on progressive-muscle relaxation and visualizing a pleasant scene (Monti, Rohsenow, Michalec, Martin, & Abrams, 1997). Adolescents received feedback in their use of the relaxation techniques and handouts on relaxation. Counselors maintained rapport, and provided generalized advice to stop criminal and risky activities and use of alcohol/marijuana.

One-on-one ME focused on addressing four components: Establishing rapport, assessing motivation for change, motivational enhancement, and establishing goals for change. The first component, establishing rapport, aims to present the counselor as empathic, concerned, non-authoritarian, and nonjudgmental, elements essential to ME (Miller, 1995). Next, level of motivation to change is assessed by asking questions about the adolescent's likes and dislikes about using alcohol and marijuana. The ME can then be tailored to these personalized pros and cons. Motivation is enhanced by utilizing the ME strategies of normative feedback (i.e., providing statistics about how peers are actually behaving), examining decisional balance (i.e., the pros and cons of behavior change), and providing information and advice. The final phase of the intervention involves helping adolescents determine, what if anything, they would like to do differently with regard to their alcohol/marijuana use and associated risky behaviors (e.g., illegal activity, sexual behavior). This includes identifying goals for behavior change, exploring barriers to these changes, and providing strategic advice.

Both RT and ME involved 2 one-to-one sessions; one session occurred directly after baseline assessment and one booster session was scheduled just prior to release from the facility (to ensure standardized timing between booster intervention and 3-month follow-up assessments). Treatments were administered by 4 treatment providers—2 men and 2 women who were all Caucasian, 3 of whom held bachelor's degrees and 1 who held a master's degree. Treatment provider gender or race/ethnicity were not matched to participant gender or race/ethnicity. All treatment providers had prior experience working with adolescents. Treatment providers were given at least 50 hours of training prior to implementing the interventions and they had 2 hours of group supervision and 1 hour of individual supervision per week. In addition, all participants received standard substance abuse treatment (described previously as “Standard Care”) and all had access to the same supplementary services.

Intervention fidelity was assessed using a fidelity measure (O'Leary-Tevyaw & Monti, 2004). Adolescents completed evaluation forms assessing whether certain core components of the interventions occurred, including therapeutic relationship and perceived utility of each topic introduced. Fidelity procedures, described above, indicated that (1) adolescents in ME rated elements of RT as less useful than elements of ME, (2) adolescents in RT rated elements of ME as less useful than elements of RT, and (3) adolescents rated the therapeutic relationship significantly better in ME than in RT (Stein, 2005).

Interviews

Demographics—Socio-demographic information was recorded including age, gender, race/ethnicity, and parent/guardian educational level.

Depressive symptoms—The Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1991) was used at baseline to measure depressive symptoms. Coefficient a's on the CES-D for alcohol abusers have ranged from .85 to .90, and the CES-D has been found to discriminate depressed from non-depressed alcoholics (Addiction Research Foundation, 1993). The CES-D is reliable and valid for use with adolescents (Radloff, 1991). For the present analyses, we dichotomized scores on the CES-D to define adolescents who did not report

significant signs of depression (total score of 0-15) from those who reported significant signs of depression (total score of 16+) at baseline (Radloff, 1977).

Condom non-use in past 12 months—Participants were asked how many times, in the past 12 months (prior to their incarceration), they had sex without a condom. For descriptive purposes, responses were dichotomized to indicate whether or not participants had ever had sex without a condom in the past 12 months (prior to incarceration). This item was repeated for the past 90 days at the 3-month follow-up assessment.

Substance use in conjunction with condom non-use—Participants were asked to indicate the number of times that they had sex without a condom while using a) alcohol and b) marijuana (Stein, Colby, Barnett, & Monti, 2003). These items were repeated for the past 90 days at the 3-month follow-up assessment.

Data Analysis Plan

Initially, means, standard deviations, and proportions were calculated (as appropriate) for each demographic variable, level of depressive symptomatology, and sexual risk behavior for the total sample and for participants assigned to each condition for descriptive purposes. We verified our randomization procedures by conducting comparisons between those assigned to ME and those assigned to RT on all variables. Where data for dependent variables violated distribution assumptions, we used inverse transformations (Tabachnick & Fidell, 1996). When distributions were not amenable to transformations, we dichotomized outcomes and conducted logistic regression analyses. Two multiple regression analyses were conducted to predict sex without a condom at 3-month follow-up and sex without a condom involving marijuana use. One logistic regression analysis was conducted to predict sex without a condom involving alcohol at 3-month follow-up. Controlling for baseline levels of relevant sexual risk behaviors, independent variables included level of depressive symptomatology (low or high), assigned condition (relaxation training or motivational enhancement) and the interaction of depressive symptom level and assigned condition. Analyses were conducted using SPSS 14.0.2 (SPSS for Windows, 2006).

Results

Description of Sample

For details of demographic and sexual behaviors of the entire sample, see Table 1. In the 12 months prior to their incarceration 52.6% ($n = 60$) reported having sex without a condom.

Predictors of Sex Without a Condom at 3-Month Follow-up

Regression analyses (linear and logistic, as appropriate) were conducted to determine if baseline sex without a condom, level of depressive symptomatology, treatment group assignment, and the interaction between depressive symptom level and treatment assignment would predict sexual risk behaviors reported at the 3-month follow-up time point. Specifically, we were interested in predicting overall sex without a condom (inverse-transformed) as well as sex without a condom that involved alcohol (dichotomized) and marijuana use (inverse-transformed). Baseline behavior, signs of depression, and the interaction between depression signs and treatment group assignment were related to reports of sex without a condom at 3-month follow-up (Hypothesis 1) (see Table 2). Baseline behavior and depressive symptomatology were associated with reports of sex without a condom that involved alcohol (Hypothesis 2) (see Table 3). For sex without a condom that involved marijuana at 3-months follow-up, baseline behavior, treatment group assignment, depressive symptoms and the interaction between negative affect and treatment group assignment were significantly related (Hypothesis 3) (see Table 4).

For significant interactions found for overall sex without a condom and sex without a condom that involved marijuana use outcomes, among adolescents who reported fewer depressive symptoms at baseline, those assigned to relaxation training (RT) reported significantly more sex without a condom overall and involving marijuana than those assigned to motivational enhancement (ME).

Discussion

The current study demonstrated the potential for using motivational enhancement with incarcerated adolescents who report fewer depressive symptoms to assist them in decreasing condom non-use and the use of marijuana in conjunction with condom non-use when they return to the community. Participation in motivational enhancement did not specifically influence condom non-use that involved alcohol, regardless of depressive symptomatology.

Among those with high negative affect upon incarceration, perhaps any treatment (or no treatment at all) is sufficient in reducing risky behavior post-release because those who report high levels of depressive symptoms are reflecting their aversion to being incarcerated. For these teens, incarceration itself is sufficient motivation to alter post-release behavior. In comparison, motivational enhancement may provide adolescents, who report little negative affect associated with their incarceration, the motivation that they require to actively engage in therapy which reduces their risky sexual behavior, while relaxation training fails to provide such motivation, so they return to their risky behavior post-release. Other researchers have found that high depression is related to sexual risk taking (Hallfors et al., 2004) so perhaps low or high depressive symptomatology may contribute to risk-taking behaviors for different reasons (e.g., low depressives may perceive themselves as invulnerable while high depressives might lack the initiative to protect themselves). These reasons may have accounted, in part, for the differential effectiveness of the two treatments in our sample.

The different findings related to condom non-use in conjunction with alcohol and condom non-use in conjunction with marijuana may be related to the differential associations between sexual risk and the two different substances. An examination of unprotected sex as a function of marijuana and alcohol use among adolescent detainees found that only marijuana use was associated with unprotected sexual intercourse (Kingree et al., 2002). Findings from another study suggest that regular use of two or more substances was associated with reports of multiple partners, exchange of sex for money or drugs, and inconsistent condom use among incarcerated adolescents (Castrucci & Martin, 2002). Research focusing on the connection between substance use and sexual risk behaviors has revealed mixed results—depending on methodology, population studied, and consideration of context effects on this association.

HIV-risk reduction efforts among high-risk substance users (intravenous drug users) have typically shown greater effects in reducing substance use risk behaviors than sexual risk behaviors (Bowen & Trotter, 1995; Kortranski et al., 1998; Longshore, Hsieh, & Anglin, 1994). One multi-site, prospective evaluation of the effects on risky sexual behavior of adolescents entering drug treatment found that more than half of the adolescents reported reductions in risky sex behavior following treatment, though these effects were moderated by conduct disorder diagnosis (Joshi, Hser, Grella, & Houlton, 2001). St. Lawrence et al., 1999 evaluated sexual risk outcomes in their randomized controlled trial of a sexual risk reduction intervention and an anger management intervention and found sexual risk reduction in participants in both interventions. They hypothesized that diffusion of the sexual risk intervention had taken place through informal peer teaching.

For adults, the period directly following release from incarceration is generally a time of increased risky behavior, especially when alcohol or drugs are involved (Belenko, Langley,

Crimmins, & Chaple, 2004; MacGowan et al., 2003). Motivational enhancement in the current study was not directly focused on altering sexual risk behaviors, per se, so our effect for overall sexual risk was surprising. Heightened levels of sexual risk behavior occur in combination with substance use and intoxication among adolescent detainees (Devieux et al., 2002; Gary et al., 2000; Harwell et al., 1999; Kingree et al., 2002). Future efforts to directly address reducing participation in high-risk sexual behaviors among incarcerated adolescents are definitely warranted.

Limitations

Interpretation of our study's finding should take into consideration some limitations. Because different time periods were used at baseline (past 12 months) and at follow-up (past 3 months), we were unable to directly address the question of whether there were reductions in sexual risk behavior (alone and in conjunction with substances). The data collected were primarily from self-reports using face-to-face interviewing methods which may have influenced responding in a social desirable manner or participants may have made an attempt to inflate and/or minimize report of sexual and/or drug use behaviors. However, interviewers were specially trained to assure participants' confidentiality and interviews were conducted in confidential, unmonitored settings, both inside the facility and within the community. Recent research on the accuracy of adolescents' reports of sexual behavior indicates good accuracy over moderate periods of time (e.g., 3 months) and using face-to-face interviewing (Durant & Carey, 2000; Jaccard, McDonald, Wan et al., 2002). Similarly, although self-report of substance use is also subject to under/over-reporting, it is one of the most sensitive indicators of substance use. Evidence generally supports accuracy of self-reports (Babor, Webb, Bureson, & Kaminer, 2002). Teens appear to report more misbehaviors than their parents report for them and to self-report more marijuana use than is detected in urinalysis (Dennis et al., 2002). We acknowledge that our sole focus on the risk behavior of condom non-use may not reflect sexual decision-making about other types of behavior and fails to capture differences in sexual risk behavior that have been found to be influenced by sexual relationship contexts (Corbin & Fromme, 2002; Katz, Fortenerry, Zimet, Blythe, & Orr, 2000; Rosengard et al., 2001; Rosengard, Adler, Millstein, Gurvey, & Ellen, 2004). For example, we did not assess how frequently condoms were used with main and non-main partners separately. Finally, ours is a convenience sample of adolescents entering a specific juvenile correctional facility—results may not generalize to adolescents incarcerated in other facilities or geographical locations.

Despite these limitations, finding that motivational enhancement influences condom non-use, in general and involving marijuana use among incarcerated adolescents who report low depressive symptoms is encouraging. ME is a brief and relatively low-cost intervention which may enhance responsiveness to treatments aimed at reducing many health compromising behaviors. Periods of incarceration represent opportunities to intervene with juvenile detainees in reducing behaviors that impact their own health as well as the health of those with whom they interact in the community.

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Table 1
Description of Sample—Total Sample and Treatment Groups Separately

Variable	Total Sample (N = 114)	JRT Condition (N = 52)	ME Condition (N = 62)
Demographics	M (SD) / N (%)	M (SD) / N (%)	M (SD) / N (%)
Age *	17.07 (.09)	17.30 (0.13)	16.87 (0.14)
Gender (Male)	102 (89.5%)	47 (90.4%)	55 (88.7%)
Race/Ethnicity			
○ African-American	39 (34.2%)	14 (26.9%)	25 (40.3%)
○ Caucasian	37 (32.5%)	17 (32.7%)	20 (32.3%)
○ Hispanic/Latino	31 (27.2%)	17 (32.7%)	14 (22.6%)
○ Other	7 (6.1%)	4 (7.7%)	3 (4.8%)
Mother/Female Caretaker Highest Education			
○ <HS	37 (32.5%)	19 (36.5%)	18 (29.1%)
○ HS graduate or GED	44 (38.5%)	17 (32.7%)	27 (43.5%)
○ > HS graduate	30 (26.3%)	16 (30.8%)	14 (22.6%)
○ Unknown	3 (2.6%)	0	3 (4.8%)
Depression			
Depressive Symptoms			
○ Not reporting significant symptoms	37 (32.5%)	15 (28.8%)	22 (35.5%)
○ Reporting significant symptoms	77 (67.5%)	27 (71.2%)	40 (64.5%)
Behavioral Risk Factors			
Baseline sex without a condom (%Yes) *	60 (52.6%)	31 (59.6%)	29 (46.8%)
Baseline sex without a condom with alcohol			
○ Never	32 (53.3%)	17 (54.8%)	15 (51.7%)
○ Sometimes	22 (36.7%)	12 (38.7%)	10 (34.5%)
○ Always	6 (10%)	2 (6.5%)	4 (13.8%)
Baseline sex without a condom with MJ			
○ Never	17 (28.3%)	8 (25.8%)	9 (31%)
○ Sometimes	18 (30%)	10 (32.2%)	8 (27.6%)
○ Always	25 (41.7%)	13 (42%)	12 (41.4%)

* Significant difference between treatment groups at $p < .05$

Table 2
Significant Predictors of Sex Without a condom at 3-Month Follow-Up (n = 114)

Step/Variables	B	SE B	β	p-value
Step 1				
• Baseline Behavior	.33	.08	.37	<.001
Step 2				
• Baseline Behavior	.34	.08	.38	<.001
• Treatment Group	-.02	.07	-.02	.788
• Baseline Depress.	.01	.07	.01	.91
Step 3				
• Baseline Behavior	.31	.08	.34	<.001
• Treatment Group	.24	.13	.31	.06
• Baseline Depressive Sx	.22	.11	.27	.05
• Treatment Group \times Baseline Depressive Sx	-.37	.15	-.45	.01

Note: $R^2 = .14$ for Step 1 ($p < .001$); $\Delta R^2 = .001$ for Step 2 ($p = .96$); $\Delta R^2 = .047$ for Step 3 ($p = .014$).

Outcome was inverse transformed due to non-normal distribution

Table 3
Significant Predictors of Sex Without a Condom at 3-Month Follow-Up Involving Alcohol (n = 114)

Step/Variables	χ^2	β	Wald (df = 1)	OR	95%CI
Step 1	15.58**				
• Baseline Behavior		2.57	13.00	13.10	3.24–53.06
Step 2	2.64				
• Baseline Behavior		2.61	12.77	13.65	3.25 – 57.24
• Treatment Group		-.45	.43	.64	.16 – 2.46
• Baseline Depress.		-.99	2.03	.37	.10 – 1.45
Step 3	2.83				
• Baseline Behavior		2.49	11.08	11.99	2.78 – 51.81
• Treatment Group		-1.95	2.42	.143	.01 – 1.66
• Baseline Depressive Sx		-2.07	4.25	.13	.02 – .90
• Treatment Group \times Baseline Depressive Sx		2.50	2.53	12.17	.56 – 265.30

** Chi-Square significant at $p < .01$ level

Table 4
Significant Predictors of Sex Without a Condom Involving Marijuana Use at 3-
Month Follow-Up (n = 114)

Step/Variables	B	SE B	β	p-value
Step 1				
• Baseline Behavior	.33	.07	.41	<.001
Step 2				
• Baseline Behavior	.32	.07	.40	< .001
• Treatment Group	.01	.06	.01	.88
• Baseline Depress.	.03	.06	.03	.69
Step 3				
• Baseline Behavior	.30	.07	.38	<.001
• Treatment Group	.25	.10	.37	.017
• Baseline Depressive Sx	.23	.09	.32	.017
• Treatment Group \times Baseline Depressive Sx	-.35	.12	-.50	.006

Note: $R^2 = .165$ for Step 1 ($p < .001$); $\Delta R^2 = .001$ for Step 2 ($p = .920$); $\Delta R^2 = .057$ for Step 3 ($p = .006$)

Outcome was inverse transformed due to non-normal distribution