Alcohol Use and Sexual Risk: Developing an HIV/STD Intervention for Adolescents in Detention

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Overview

Overall goal of research program is to design, implement, and evaluate an HIV/STD prevention intervention with criminally involved adolescents

Development of model of condom use intentions

Study 1: Cross-sectional study with incarcerated adolescents (Bryan, Aiken, & West, in press, *JASP*)

Replicate model of condom use intentions

Conduct prospective test of model constructs for predicting condom use

Study 2: Longitudinal study with adolescents on probation in Denver-metro area, completed in July 2002 (Bryan, Rocheleau, Robbins, & Hutchison, in press, *Health Psychology*)

Explore other potential determinants of condom use (e.g., alcohol use)

Study 3: Intervention study with adolescents in detention, hit the field in August 2003

Use these findings to create theory-based, empirically targeted intervention
Adolescents are at risk for sexually transmitted diseases (STDs) including HIV/AIDS.

Overall AIDS incidence is declining, but no comparable decline in HIV among those aged 13-19; young people of color are particularly at risk.

The highest rates of many common STDs (e.g., chlamydia) occur in young people between the ages of 15 and 24.

Adolescents involved with the criminal justice system are younger at first intercourse, have higher rates of anal intercourse, a greater number of sex partners, and lower rates of condom use.
Over two decades of research on HIV/STD prevention interventions have produced numerous reviews of the literature and some conclusions can be drawn.

Knowledge-based interventions will increase knowledge, but are **insufficient** to produce behavioral change.
Reviews of HIV/STD prevention interventions with adolescents conclude that successful interventions are derived from empirically supported theoretical models, target their content to both the developmental stage and cultural milieu of the population.
Successful HIV prevention interventions for adolescents have occurred

- in school settings (e.g., Coyle et al., 1999; Fisher, Fisher, Bryan & Misovich, 2002)
- in community-based settings (e.g., Jemmott, Jemmott, & Fong, 1998; Jemmott, Jemmott, Fong, & McCaffree, 1999)
- in public health clinics (e.g., Quirk, Godkin, & Schwenzfeier, 1993).

Virtually none have been conducted with adolescents in criminal justice settings (but see work of St. Lawrence)
### Study 1: Testing a theoretical model of condom use intentions

<table>
<thead>
<tr>
<th>General Constructs</th>
<th>Population Specific Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Attitudes and Intentions</td>
<td>- Future Orientation</td>
</tr>
<tr>
<td>(Theory of Reasoned Action, Theory of</td>
<td></td>
</tr>
<tr>
<td>Planned Behavior)</td>
<td><strong>Self-esteem</strong></td>
</tr>
<tr>
<td>- Self-efficacy (Social Cognitive</td>
<td></td>
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<tr>
<td>Theory)</td>
<td><strong>Peer Norms</strong></td>
</tr>
<tr>
<td>- Perceived Benefits (Health Belief</td>
<td></td>
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<tr>
<td>Model)</td>
<td></td>
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<tr>
<td>- Previous Condom Use</td>
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</tbody>
</table>
Participants and Methods

- Data collected from 150 incarcerated adolescents (93% male, 98% sexually experienced)

- Mean age of participants was 16 (range 13 to 17 years); 44% Hispanic, 39% Caucasian, 8% mixed race, 5% African American, and 4% Native American

- 5.4% of sexually active participants reported using condoms consistently (i.e., 100% of the time).

- Face-to-face interviews conducted individually in private location in incarceration facility

- Cross-sectional design
Coefficients are standardized path coefficients. Overall model fit: $\chi^2 (45, n = 137) = 95.59, p < .001$, CFI = .90, RMSEA = .09, 90% CI [.06-.11], SRMR=.07.
Study 2: Goals

- Replicate theoretical model of condom use among criminally-involved adolescents
- Determine whether model constructs predict condom use in a prospective design
- Assess the relationship of alcohol use to condom use among criminally-involved adolescents
- Use this information to develop a detention-based HIV/STD prevention intervention for criminally-involved adolescents
Participants

- Time 1 data collected from 300 adolescents involved with the Denver-metro area juvenile justice system.
- Probation sentences varied from a few months to several years; mean was 12 months.
- Most frequently cited offenses were possession of a controlled substance (11.6%), stealing/theft (20%), auto theft (8.8%), and assault/fighting (14.9%).
- $M_{age} = 15.28$ (range 12-18), 77% male.
49% Hispanic-American, 23% Caucasian, 21% African-American, 5% Native American, and 3% “other”.

78% of boys and 75% of girls were sexually experienced

7% of boys and 13% of girls had had STD

14% of boys and 32% of girls reported being involved in a pregnancy; 9% of girls and 6.5% of boys reported having at least one child.

35% of sexually active participants reported consistent condom use
Design

- Prospective design; Initial data collected at time 1 and follow-up behavioral data collected six months later at time 2
- Mean length of actual time that elapsed between time 1 and time 2 was 7.23 months
- The final retention rate was 89%, with 267 of the original 300 retained
- Of those lost to follow-up:
  - 1 participant had died
  - 18 had moved without leaving any forwarding information
  - 14 were “on the run”
Method

- Recruitment and initial questionnaire completion took place at probation offices, courts, and a youth center.
- All questionnaires were administered by trained research personnel in private locations.
- All participants had to have both a signed parental/guardian consent form and a participant assent form.
- Federal certificate of confidentiality was obtained for this research.
- Participants were paid $15 at time 1 and $50 at time 2.
Goal 1: Replicate theoretical model of condom use intentions
Perceived Benefits

Affective Attitudes

Bryan et al., in press

Peer Norms

General Attitudes

Condom Use Self-Efficacy

Positive Outlook

Previous Condom Use

Optimism about Future

Control Over Future

Self-Esteem

Safer Sex Intentions

Overall model fit: $\chi^2 (59, n = 230) = 155.74, p < .001$, CFI=.88, RMSEA=.088, 90% confidence intervals (CI) of the RMSEA [.07-.11], SRMR=.098. Significance levels for paths: *p<.05, **p<.01, ***p<.001.
Goal 2: Determine whether model constructs predict condom use in a prospective design
### Table 1. Regressing time 2 condom use on time 1 model variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>$b$</th>
<th>$se$</th>
<th>$B$</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future orientation</td>
<td>.12</td>
<td>.34</td>
<td>.04</td>
<td>ns</td>
</tr>
<tr>
<td>Optimism about the future</td>
<td>-.15</td>
<td>.29</td>
<td>-.05</td>
<td>ns</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-.17</td>
<td>.26</td>
<td>-.06</td>
<td>ns</td>
</tr>
<tr>
<td>Benefits</td>
<td>.15</td>
<td>.18</td>
<td>.07</td>
<td>ns</td>
</tr>
<tr>
<td>Attitudes</td>
<td>.47</td>
<td>.16</td>
<td>.24</td>
<td>.004</td>
</tr>
<tr>
<td>Norms</td>
<td>-.06</td>
<td>.15</td>
<td>-.03</td>
<td>ns</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>-.08</td>
<td>.24</td>
<td>-.03</td>
<td>ns</td>
</tr>
<tr>
<td>Intentions</td>
<td>.35</td>
<td>.16</td>
<td>.19</td>
<td>.03</td>
</tr>
</tbody>
</table>
Goal 3: Assess the relationship of alcohol use to condom use among criminally-involved adolescents
Alcohol Use and Risky Sex

- Alcohol use cited as reason for risky sex among adolescents because they evidence high levels of BOTH behaviors.
- Empirically, the relationship is “elusive”.
- A number of theories about role of alcohol in risky sexual behavior:
  - Cluster of related risk behaviors
  - Same risk behaviors caused by third variable
  - Episodic relationship – use of alcohol at time of intercourse affects safer sexual behavior
“Why don’t we get drunk....and screw?”

-Jimmy Buffett
Methods of Examining the Relationship

- **Global Correlation** (e.g., Duncan et al., 1999) – uses measure of lifetime condom use and lifetime use of alcohol during sex
- **Situational Covariation** (e.g., Poulin & Graham, 2001) – measures of alcohol use, use of alcohol during sex, and condom use in specified time period (previous 6 months)
- **Event Analysis** (e.g., Tubman & Langer, 1995) – most recent intercourse, comparison of episode of intercourse with alcohol and one without alcohol
All analyses investigate influence of alcohol problems (RAPI) and impulsivity (IMPSS).

RAPI has shown stronger relationships to risk behavior than quantity/frequency of alcohol use
- White & Labouvie (1989)

Sensation seeking/novelty seeking show relationships to risk behavior in these young people
Table 2. Global Correlation of alcohol use and condom use (Time 1 measures)

<table>
<thead>
<tr>
<th></th>
<th>Condom Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol quantity and frequency</td>
<td>-.07</td>
</tr>
<tr>
<td>Use of alcohol during sex</td>
<td>-.03</td>
</tr>
<tr>
<td>Alcohol Problems</td>
<td>-.15*</td>
</tr>
<tr>
<td>Impulsivity/sensation seeking</td>
<td>-.23***</td>
</tr>
</tbody>
</table>
Table 3. *Situational covariation of alcohol use and condom use (Time 2 measures)*

<table>
<thead>
<tr>
<th>Alcoholic Use Variable</th>
<th>Condom Use Past 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol quantity and frequency (6 mo)</td>
<td>.11</td>
</tr>
<tr>
<td>Use of alcohol during sex (6 mo)</td>
<td>-.01</td>
</tr>
<tr>
<td>Alcohol Problems (time 1)</td>
<td>-.02</td>
</tr>
<tr>
<td>Impulsivity/sensation seeking (time 1)</td>
<td>-.16*</td>
</tr>
</tbody>
</table>
We examined alcohol use and condom use at most recent intercourse. Participants were asked:

- Were you drinking alcohol? (20% yes)
- Was partner drinking alcohol? (21% yes)
- Did you use a condom? (70% yes)
There was a significant relationship between own and partner’s alcohol use ($r = .68$, $p < .001$)

NO relationship between alcohol use during the episode by either partner and condom use.

Logistic regressions showed that RAPI (OR=.97, 95% CI .96-.99) and IMPSS (OR=.92, 95% CI .85-.99) measured at Time 1 significantly predicted condom use at most recent intercourse six months later.

Adolescents with higher alcohol problems and impulsivity were less likely to use a condom.
Participants were asked about TWO intercourse occasions

- Think about the last time you had intercourse while drinking alcohol
- Think about the last time you had intercourse **without** drinking alcohol

For both episodes, did you use a condom?
Figure 3. Episodic association between alcohol use and condom use at Time 2.
<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>95% CI</th>
<th>B</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of drinks consumed</td>
<td>.55</td>
<td>.37-.81</td>
<td>-.45</td>
<td>.01</td>
</tr>
<tr>
<td>Type of Partner</td>
<td>.51</td>
<td>.30-.87</td>
<td>-.37</td>
<td>.01</td>
</tr>
<tr>
<td>Alcohol Problems</td>
<td>.89</td>
<td>.78-1.0</td>
<td>-.26</td>
<td>.07</td>
</tr>
<tr>
<td>Impulsivity/sensation seeking</td>
<td>.98</td>
<td>.95-1.0</td>
<td>-.21</td>
<td>.12</td>
</tr>
<tr>
<td>Gender (1=male, 0=female)</td>
<td>2.21</td>
<td>.84-5.86</td>
<td>.21</td>
<td>.11</td>
</tr>
<tr>
<td>Q/F alcohol use 6 mos.</td>
<td>1.16</td>
<td>.83-1.6</td>
<td>.12</td>
<td>.39</td>
</tr>
</tbody>
</table>
The association of alcohol use to condom use appears to be at the episodic level for these adolescents.

Consistent with Corbin & Fromme (2002), Health Psychology; same findings with college students as in current study.

If we were to intervene to increase condom use behavior, need to address the issue of alcohol use in conjunction with sexual activity.
Study 3: Goal of the Intervention Study

Test the efficacy of theory-based, empirically targeted interventions for adolescents in detention

- One intervention incorporates both a sexual risk reduction component and an alcohol risk reduction component
- One contains only the sexual risk reduction component
- Compare these to an information-only control intervention
Design

3 detention centers in Denver-metro area, total $n$ planned = 480

All new detainees aged 14-17 offered opportunity to participate at intake to facility, random assignment occurs after parental/guardian consent

Adolescent assigned to one of three group-based interventions

- **SRRI**: sexual risk reduction intervention (3 hrs)
- **SRRI+ETOH**: sexual risk reduction intervention + alcohol component (3 hrs)
- **Control**: information on transmission and prevention (1 hr)
Both experimental interventions address theoretical model constructs. Framing and subtext geared towards increasing adolescent self-esteem, sense of responsibility, and having a positive orientation towards the future. “Get R.E.A.L” (responsible, empowered, aware lifestyles).
SRRI Intervention

- Format based on previously successful published HIV/STD risk reduction interventions conducted with young adults and adolescents (Bryan et al., 1996; Fisher et al., 2002)

- Videos, group activities, games
SRRI+ETOH Intervention

- Same content and format, abbreviated slightly to allow time for...
- Alcohol risk reduction intervention component targeted to alcohol use in conjunction with sexual activity
- Based on techniques of motivational interviewing (Brown & Miller, 1993; Miller & Sanchez, 1994; Miller et al., 1988; Rollnick et al., 1992)
- Articulated to a group context (GMI)
Participants receive individual feedback information compiled from pretest data.

GMI addresses:
- Awareness about one’s level of alcohol consumption
- Awareness about the consequences of alcohol use
- Awareness about alcohol’s effects on decision-making
- Strategies to reduce alcohol use risk

All specifically with regard to alcohol use in conjunction with sexual activity.
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