

## Substance Use Among High Risk Adolescents: Related Risks and Treatment Challenges

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## Marijuana use and risky sex: Longitudinal, episodic, and moderated relationships

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## Adolescence



## Typical Adolescents

- Increases with age and peaks in late adolescence/young adult hood (Johnston et al., 2008; Palmer et al., 2009), then declines
- Alcohol most commonly used and abused (Palmer et al., 2009)
- Generally higher rates of all risk behavior among boys (e.g., Palmer et al., 2007)

## High Risk Adolescents

- High risk = juvenile justice involvement
- Extremely high rates of
  - Marijuana use and abuse (most common)
  - Alcohol use and abuse
  - Risky sexual behavior
- Not much is known regarding trajectories
- Issues of gender more complex

## High Risk Adolescents-Drug Use

- Alcohol and marijuana more common among criminally-involved youth (Ho, Kingree, & Thompson, 2007; Kingree & Betz, 2003)
- Estimated 88.7% of incarcerated adolescents reporting current use of alcohol (Lebeau-Craven et al., 2003).
- Marijuana characterized by NIDA as an "emerging drug of abuse in relation to HIV risk for highly vulnerable youth."

## High Risk Adolescents- Risky Sexual Behavior

- Younger at first intercourse, higher rates of anal intercourse, greater number of sex partners
- Lower rates of condom use
- Higher rates of unintended pregnancy and STDs including HIV/AIDS
- Majority are male, but:
  - Female juvenile detainees more likely to have unprotected sex than males Kingree et al. (2000).
  - 1 out of every 4 young women aged 14-19 has at least one common STD (CDC, 2008).

## Romantic Relationships Among Adolescents

- Majority of adolescents experience sexual debut within relationships (Dorius, Heathon, & Steffen, 1993).
- As relationships become “serious” condom use declines (Bauman & Berman, 2005)

## Alcohol and Risky Sex

- Alcohol use associated with decisions to have sex and with whom (e.g., sex with casual partners), and with lack of protective sexual behaviors (e.g., condom use; Cooper 2002).
- Inconsistencies in the literature
  - Many diary studies do NOT find a relationship
  - Relationship most important at the event level
  - As number of drinks consumed prior to an intercourse occasion increased, odds of using condoms decreased (Bryan, Ray, & Cooper, 2007).

## Marijuana and Risky Sex

- Evidence for relationship at global, situational, and event-level analyses (Kingree, Braithwaite, and Woodring, 2000)
- More high risk adolescents reported marijuana use (45%) than alcohol use (11%) in the context of a sexual encounter (Kingree & Betz, 2003)
- Positive sex-related marijuana expectancies related to less condom use when using marijuana (Hendershot, Magnan, & Bryan, in press)

## Role of Gender

- Young women commonly have better attitudes and higher intentions than young men, but have lower rates of condom use
- Juvenile detainee girls are older when they start using marijuana, but more likely to meet criteria for marijuana dependence (Kim & Fendrich, 2002).
- Marijuana use was positively correlated with a higher number of sexual partners for girls MacKellar et al. (2000) .

## Purpose of current study

- Examine the relationship of marijuana use to risky sexual behavior
  - Longitudinal modeling
  - Episodic assessments
- Determine whether gender and relationship status moderates these relationships.
- Consider implications for intervention and treatment

## Recruitment

- Part of CUSlam project: University of Colorado Study of Longitudinal Adolescent health Maintenance
- Recruited from probation offices in Denver metro area to take part in two-year longitudinal study
- Adolescent assent and parental consent obtained
- Reimbursed \$20 for Baseline assessment and \$50 for each additional assessment (every six months for 2 years).

## Participants

- 485 males, 243 females at baseline
- Retention rates ranged from 90.1% to 78.6% from 6 month to 24 month follow-ups
- 14-18 years old ( $M = 15.71$ ,  $SD = 1.05$ )
- On probation at Time 1
- Ethnically diverse:
  - 15.7% Caucasian
  - 24.5% African-American
  - 40.9% Hispanic
  - 18.9% Mixed/Other

## Measures

- Risky sexual behavior measured as average condom use in previous six months on a 5-point scale from “Never” to “Always.”
- Marijuana use:
  - Frequency of use in past 6 months (range “never” to “every day”)
  - Marijuana dependence ( $\alpha = .76$ )
    - Sum of 10 items based on DSM IV criteria
    - e.g., “When I smoked marijuana, I often smoked more or for longer periods of time than I intended”.

## Sexual Risk Demographics

- 87% reported ever having sex
- Average age of first intercourse was 13.35 ( $SD = 2.0$ )
- Mean number of lifetime sexual partners was 8.28 ( $SD = 9.5$ ), with a median of 5 and a mode of 3
- Fewer than 29% reported always using condoms.

## Gender Differences in Sexual Risk

- Males and females did not differ in terms of how frequently they have intercourse.
- Males reported:
  - Significantly higher number of lifetime sexual partners and younger age at first intercourse
  - Significantly more condom use
- 30.5% of females and 18.2% of males reported ever being/getting someone pregnant  $\chi^2(1, N = 644) = 11.66$ ,  $p < .001$
- 24.3% of females and 2.9% of males reported having had an STD  $\chi^2(1, N = 634) = 73.31$ ,  $p < .001$

## Marijuana Use Demographics

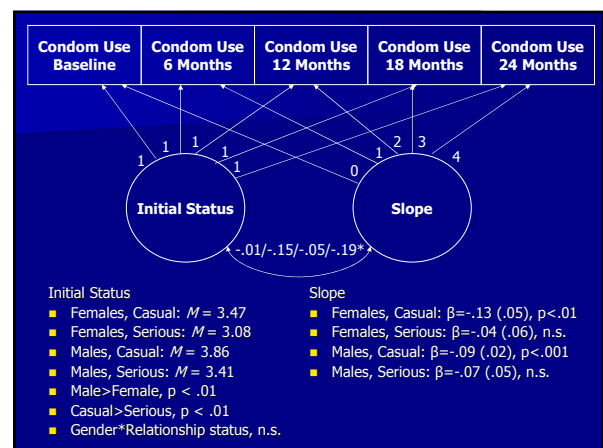
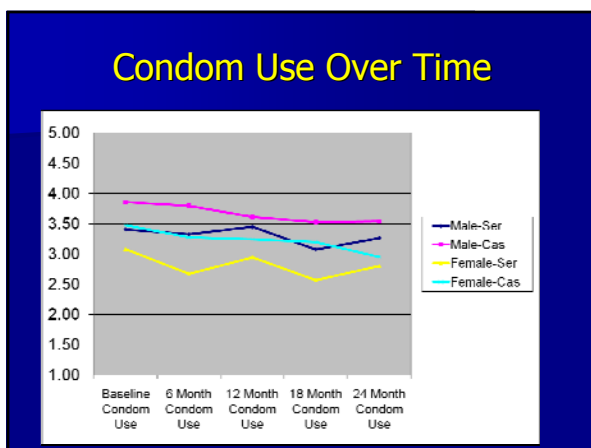
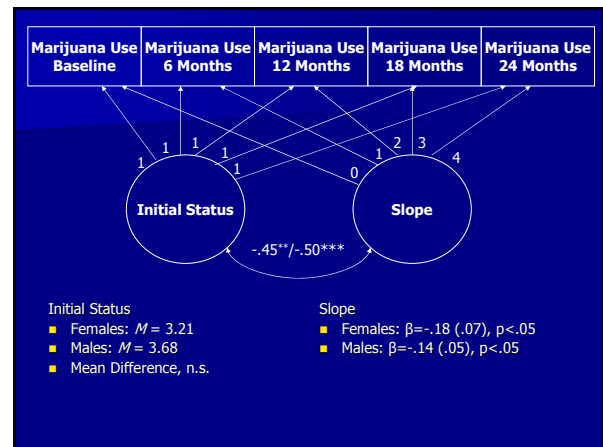
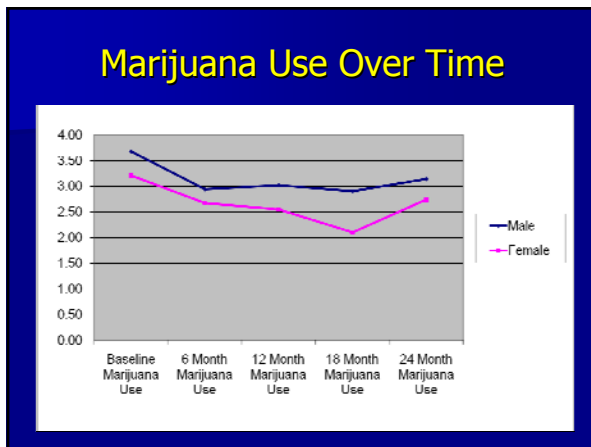
- 90% of participants reporting ever having smoked marijuana
- 64% of females and 72% of males reported smoking marijuana in the past six months,  $\chi^2(1, N = 623) = 5.21$ ,  $p < .05$
- Average age of first use was 11.94 ( $SD = 2.0$ ) for females and 11.49 ( $SD = 2.6$ ) for males, ( $t = 2.19$ ,  $p < .05$ ).
- Participants' scores on the 10-item symptom measure of marijuana dependence encompassed the full range of the scale
  - Did not differ by gender ( $t = .80$ , *n.s.*;  $M = 3.14$  and  $3.32$  for males and females, respectively).

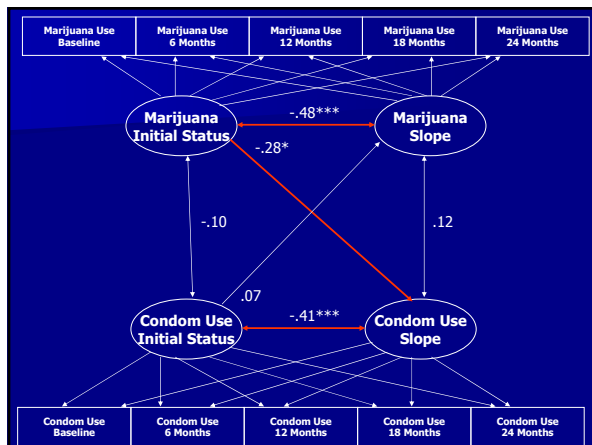
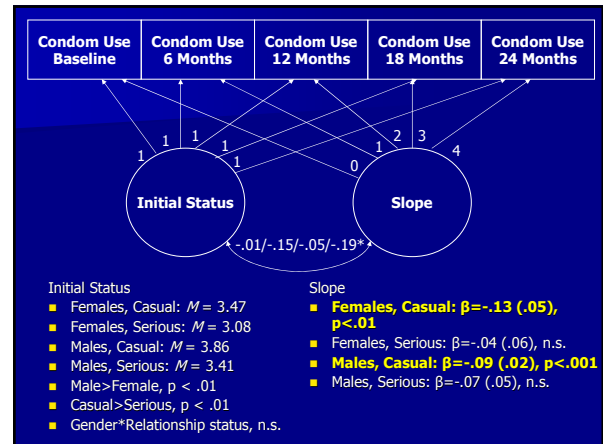
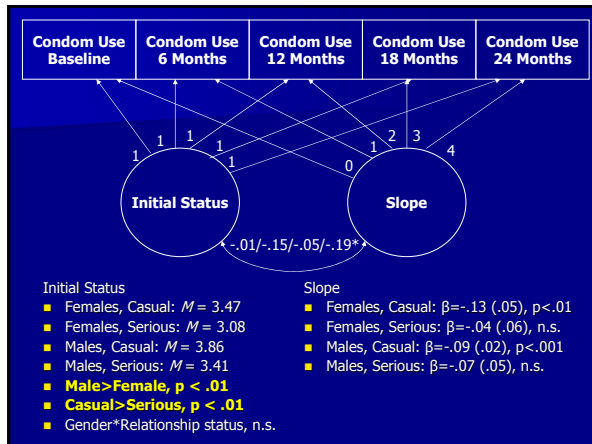
### Relationship Status

- Of those in a relationship (n=431)
  - 15% (65) casually dating
  - 39% (169) steadily dating
  - 46% (197) seriously committed
- Of the n = 422 who gave info on length
  - Mean=8.87 months, Median=5 months

### Analytic Strategy

- Marijuana use growth model (frequency of use measure)
  - In multiple group framework by gender
- Condom use growth model
  - In multiple group framework by gender and relationship status (serious versus casual)
- Parallel process growth model linking marijuana use over time to condom use over time
- Relationship of marijuana use to condom use in single intercourse episode to better understand role of gender and relationship status





### Event Level Relationships

- 27.6% of males smoked before last intercourse, 19% of females  
 $-\chi^2(1, N = 595) = 5.03, p < .05$
- 23.5% of males' partners smoked before last intercourse, 33.2% of females' partners smoked before last intercourse  
 $-\chi^2(1, N = 598) = 6.16, p < .05$

### Event Level Relationships

- Used condom at last intercourse?

	Had been smoking	Had NOT been smoking
Females	40%	64.6%
Males	70.5%	53.9%

- $B = .98 (.44), OR = 2.67$  with 95% CI 1.13 to 6.31

### Discrepancies in Marijuana Use

- In a logistic regression model predicting condom use at last intercourse, the interaction between gender and marijuana use discrepancy was significant ( $B = -2.53 (1.28), OR = .08$  with 95% CI .01 to .98)
  - For males, 32.1% reported using condoms if they were not smoking marijuana but their partner was, compared to 64.4% if they were smoking and their partner was not.
  - The pattern for females was the opposite, such that 45.16% used condoms if they were not smoking but their partner was, compared to 20% if they were smoking and their partner was not.
- Overall this suggests that condom use is particularly unlikely when the young woman in the interaction is smoking marijuana and the young male is not.

### Effects of Relationship Status

- Episodic relationships also depend on relationship status:
  - For those whose last intercourse episode was with someone they had just met, 54% reported using a condom if they had been smoking marijuana, compared to 67.4% who reported using a condom if they had not been smoking marijuana.
  - Marijuana use does not seem to impact risky sex with either casual partners or steady partners to the same degree.

### Ecology of Condom Use

- Women tend to have higher condom use intentions, and are trained to ask partners to use a condom
- Men are more likely to want to have sex *without* a condom
- Sets up potentially competing motivations
  - Women want to use condoms
  - Men don't want to use condoms
- In steady relationships, these issues have been worked out, thus no impact of substance use

### Impact of Marijuana Use on Motivation

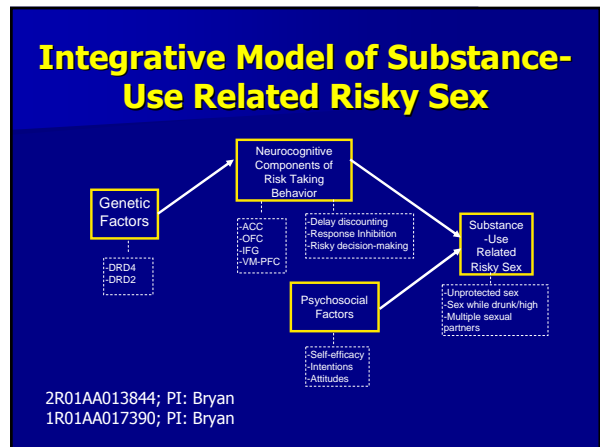
- Marijuana use by young women can lead to lower self-regulation to follow through with insisting on condom use
- Marijuana use by young men may lead to lower self-regulation in following through on insisting that condoms NOT be used
- So, in new partnerships where motivations are first acted upon and negotiated:
  - When male is smoking and female is not, condom use more likely (female motivation dominant)
  - When female is smoking and male is not, condom use less likely (male motivation dominant)

### Intervention Implications

- Our efforts to include alcohol use content into sexual risk reduction intervention with high risk adolescents have shown promise
  - (Schmiege et al., 2009; Bryan et al., 2009)
- Might the addition of marijuana use risk reduction to the combined intervention enhance its effectiveness?
  - 2R01AA013844; PI: Bryan
- Are there gender differences in the efficacy of these interventions?

### Bigger Picture

- In these adolescents, we see both global and episodic relationships of substance use and risky sex
- We need a more sophisticated understanding of the variables that influence this relationship
- We know a lot about psychosocial factors (e.g., Bryan et al., 2004; Bryan et al., 2005; Schmiege et al, 2009)
- We know very little about the neurobiological and genetic factors



## Thank you for your attention!

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