

Alcohol and sexual risk among women recently involved in the corrections system: Findings from event-level analyses

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**Presenter Disclosures**

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(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose.

Alcohol and HIV: approaches

- Two main study designs:
  - Person-level (global) associations
    - Alcohol use over period of time associated with risk behavior over period of time?
    - Research generally says "yes."
  - Event-level (or day-level) associations
    - Alcohol use in context of sex associated with riskiness of sex?
    - Research generally says "no."
    - Problem 1: What about person-level associations?
    - Problem 2: What if alcohol is associated with intercourse but not condom use?

Alcohol and HIV

- Solution 1: Combine person-level and event-level in 2-level model
  - Model day-level sexual behavior using person-level alcohol use and day-level alcohol use.
  - Even better, include measure of recent (month-level) alcohol use.
    - 3-level model!
- Solution 2: Multiple outcomes
  - Occurrence of unprotected intercourse (vs. no or protected intercourse).
    - Best measure of risk.
  - Occurrence of intercourse (vs. no intercourse).
    - Is alcohol associated with increased risk through increased sex?
  - Not using a condom.
    - Is alcohol associated with increased risk through riskier sex?

Theories on the alcohol-sex connection

| Association of:<br>with alcohol at the: | Intercourse  |             |           | Condom use   |             |           |
|---|--------------|-------------|-----------|--------------|-------------|-----------|
|   | Person-level | Month-level | Day-level | Person-level | Month-level | Day-level |
| Alcohol myopia                          | no           | no          | yes       | no           | no          | yes       |
| Alcohol expectancies                    | no           | no          | yes       | no           | no          | yes       |
| Personality trait                       | yes          | no          | no        | yes          | no          | no        |
| Place-based                             | no           | no          | yes       | no           | no          | no        |
| Courtship                               | no           | no          | yes       | no           | no          | no        |
| Social/sexual networks                  | yes          | yes         | no        | yes          | yes         | no        |
| Life-circumstances                      | yes          | yes         | no        | yes          | yes         | no        |

Methods: Eligibility and procedures

- Women at-risk for HIV with recent involvement in the CJS (Portland, OR)
  - At least 18 years of age
  - Incarcerated in the past year or currently being on parole or probation
  - HIV risk behavior in the past year (injection drug use, crack use, intercourse with a male injection drug user, sex exchange, or sex with ten or more partners).
- Recruited through jails, parole & probation, fliers, mailings, and word-of-mouth
- Randomized into control, HIV prevention, or HIV & IPV prevention conditions
- Assessments at baseline and 3, 6, and 9 months

Baseline characteristics of participants that completed 2+ assessments, drank, and had intercourse (n = 218 out of 530)

|                               | n   | (%)    |                                | n   | (%)    |
|-------------------------------|-----|--------|--------------------------------|-----|--------|
| Age                           |     |        | Income less than \$300/month   | 117 | (53.7) |
| 29 or younger                 | 56  | (25.7) | Depressive (CESD>=16)          | 142 | (65.1) |
| 30-39                         | 85  | (39.0) | Incarcerated last 12 months    | 180 | (82.6) |
| 40 or older                   | 77  | (35.3) | Substance use (last 30 days)   |     |        |
| Race/ethnicity                |     |        | Marijuana                      | 84  | (38.5) |
| White                         | 120 | (55.0) | Hard drugs                     | 152 | (69.7) |
| African American              | 41  | (18.8) | Injected drugs                 | 70  | (32.1) |
| Hispanic/Latina               | 13  | (6.0)  | Sexual behavior (last 30 days) |     |        |
| Native Amer./Amer. Indian     | 16  | (7.3)  | Unprotected intercourse        | 197 | (90.4) |
| Other                         | 1   | (0.5)  | Protected intercourse          | 94  | (43.1) |
| Multiracial                   | 27  | (12.4) | Sex exchange                   | 52  | (23.9) |
| Education level               |     |        |                                |     |        |
| Less than GED                 | 57  | (26.1) |                                |     |        |
| H.S. grad or GED              | 94  | (43.1) |                                |     |        |
| College or technical training | 67  | (30.7) |                                |     |        |

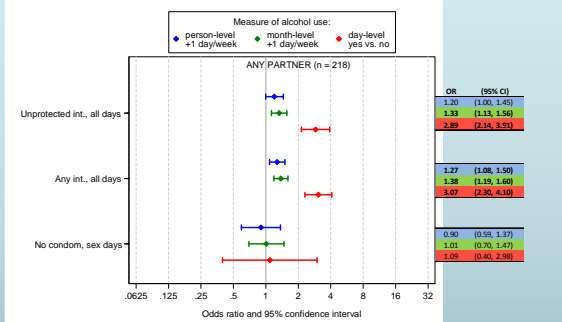
### Methods: Data collection

- Calendar-based data collection
  - 30-day recall period
  - For each day:
    - Alcohol use (y/n)
    - Drug use (type, times, injecting, sharing needles)
    - Intercourse (vaginal/anal, main/other partner, condom use, sex exchange, forced sex)
- Analytic samples:
  - alcohol use; vaginal or anal intercourse; & 2+ assessments

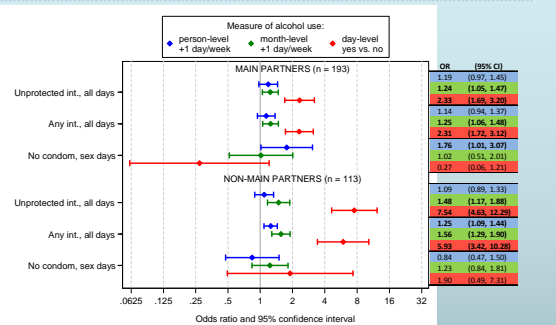
### Methods: Data analysis

- Analyses used multilevel models with days nested within months nested within individuals.
- Day-level outcomes (separate analyses):
  - Unprotected intercourse (on all days)
  - Any intercourse (on all days)
  - Any intercourse without condom (on days with intercourse)
- Predictors:
  - Person-level: days w/ alcohol per week (grand mean centered)
  - Month-level: days w/ alcohol per week (person centered)
  - Day-level: any vs. no alcohol (person-month centered)
- Random intercepts at the person- and month-level and intervention status and study time covariates (SAS GLIMMIX procedure).
- Additional analyses by partner type.
- Additional analyses for drug use.

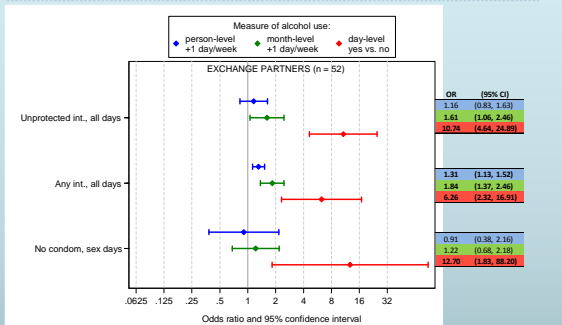
### Alcohol use and sexual behavior—any partner



### Alcohol use and sexual behavior—main and non-main partners



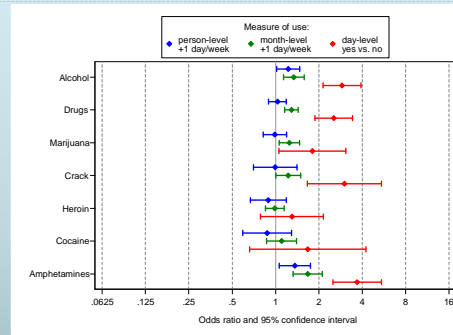
### Alcohol use and sexual behavior—exchange partners



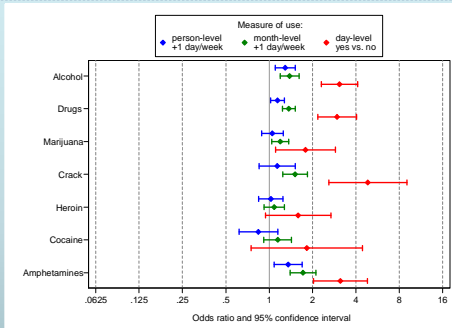
### Theories: Evidence vs. predictions

| Association of:<br>with alcohol at the: | Intercourse  |             |           | Condom use   |             |           |
|---|--------------|-------------|-----------|--------------|-------------|-----------|
|   | Person-level | Month-level | Day-level | Person-level | Month-level | Day-level |
| Findings (any partner)                  | yes          | yes         | yes       | no           | no          | no        |
| Alcohol myopia                          | no           | no          | yes       | no           | no          | yes       |
| Alcohol expectancies                    | no           | no          | yes       | no           | no          | yes       |
| Personality trait                       | yes          | no          | no        | yes          | no          | no        |
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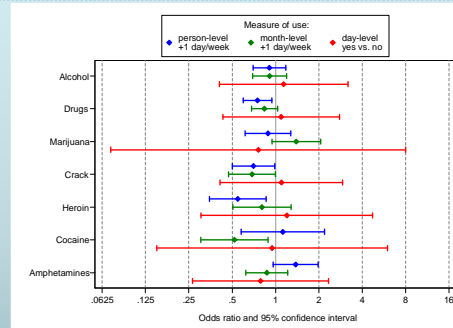
### Substance use and unprotected intercourse (all days)—any partner



### Substance use and intercourse (all days)—any partner



### Substance use and unprotected intercourse (sex days)—any partner



### Conclusions

- ▶ Alcohol associated with unprotected intercourse.
  - ▶ Increased risk through increased intercourse.
  - ▶ Alcohol generally not associated with condom use.
  - ▶ Somewhat stronger effects for non-main partners and exchange partners than for main partners.
- ▶ Patterns for drugs similar to patterns for alcohol use.
  - ▶ Stronger effects for amphetamine use.
  - ▶ Weaker effects for heroin use.
- ▶ Limitations:
  - ▶ Based on recall—may be measurement error.
  - ▶ Did not measure number of drinks.
  - ▶ Findings are population-specific.

### Acknowledgements

- ▶ Multnomah County Health Department
- ▶ Oregon Health Division
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  - ▶ F31 DA026763
  - ▶ R01 DA012572
- ▶ Intervention information:
  - ▶ Weir BV, O'Brien K, Bard RS, Casciato CJ, Maher JE, Dent CW, Dougherty JA, Stark MJ. (2009). Reducing HIV and partner violence risk among women with criminal justice system involvement: a randomized controlled trial of two motivational interviewing-based interventions. *AIDS & Behavior*, 13(3): 509–522. [PMC2855899]
  - ▶ <http://www.cdc.gov/hiv/topics/research/prs/resources/factsheets/mihrr.htm>
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