Longitudinal Trends in Multiple Drug Use Among Young Injection Drug Users

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Objective

Longitudinal studies of drug users can offer important insights into patterns of use, including cessation, continuation, and bingeing. This presentation describes patterns of changing multiple drug use among young injection drug users (IDUs), and examines the impact of individual and social factors on the decrease and cessation of multiple drug use.

Significance of Polydrug Use

- Polydrug use has been linked to drug overdose, increased risk of exposure to HIV and HCV, drug dependence, and decreased cognitive functioning.
- While polydrug use is a well understood health risk for heroin and cocaine users, the advent of "club drugs," such as ketamine, ecstasy, and methamphetamine, have raised new health concerns.
- Polydrug Use: using two or more substances concurrently during a single drug using event.
- Multiple Drug Use: use of two or more substances within a 30-day period. May or may not involve concurrent use, i.e., simultaneous or sequential substance use.

Ketamine Study Background

- Ketamine is a surgical anesthetic developed in the U.S. in 1962 with dissociative and hallucinogenic properties.
- Young clubbers in the U.S. and U.K. began using the drug recreational in the 1980s/1990s.
- Epidemiological surveillance reports indicated that ketamine was being injected by young IDUs in late 1990s.
- No descriptive data existed on risks, such as overdose, dependence, HCV/HIV, or the population of users.
- In 2003, research began on populations of young IDUs in three cities – New York, New Orleans, Los Angeles - who had injected ketamine.

Multiple/Polydrug Use and Ketamine

- Prior studies focused on other club drugs, such as ecstasy, methamphetamine, and GHB, often reported ketamine use – including multiple and polydrug use - among certain populations of users, e.g., gay men, club kids.
- Our previous research on young ketamine IDUs (2005) found that polydrug use was typical at both initiation and recent ketamine injection events.
- More recent data indicates (2007) both high-rates of multiple drug use and polydrug use during ketamine injection and sniffing events.
- No studies have examined factors predicting multiple drug use in a sample of ketamine injectors.

Methodology: Cross-Sectional Study (Los Angeles)

- Enrollment criteria:
  1) 16-28 years old
  2) Injected ketamine within past 2 years
- Ethnographers targeted neighborhoods populated with young people and/or known for drug selling: Hollywood, Santa Monica and Venice Beach
- Semi-structured in depth interview administered on laptops and digitally recorded. Questions focused on drug injection events, drug use histories, risk behaviors, and demographics.
- 101 IDUs recruited during the cross-sectional phase (2005 and 2006) were eligible for enrollment into the longitudinal study.

Methodology: Longitudinal Study

- Enrolled subjects consented to five follow-up interviews occurring every three to four months.
- Locator information, such as telephone numbers and email addresses, were collected. Ethnographers provided a toll-free number connected to their cell phone.
- Some follow-up interviews were conducted over the telephone, and respondent payments ($25, $30, $35, etc.) were sent via Western Union.
- Follow-up interviews followed the same format as the baseline cross-sectional interview, which included questions about recent drug use and multiple drug use.
- Of the 101 eligible respondents, 79 completed at least one follow up interview, and 69 completed two or more.

Demographics (N=69)

Median Age		21
Male		59.4%
Race & Ethnicity		
	White/Caucasian	78.3%
	Black/African American	1.4%
	Hispanic/Latino	7.2%
	Asian or Pacific Islander	1.4%
	Native American	1.4%
	Multiracial	10.1%
Sexual identity		
	Heterosexual	76.8%
	Gay/Lesbian	1.4%
	Bisexual	20.3%
Currently Homeless		97.1%
History of Drug Treatment		59.4%

Injection Drug History

Prefers Injection		**63.7%**
Drugs Ever Injected		
	Ketamine	**100.0%**
	Heroin	**82.6%**
	Methamphetamine	**78.3%**
	Powder Cocaine	**76.8%**
	Speedball	**63.8%**
	Crack Cocaine	**44.9%**
	Ecstasy/MDMA	**21.7%**
	LSD	**17.4%**
	PCP	**2.9%**
	Mushrooms	**1.4%**

Baseline: Past 30 Day Drug Use

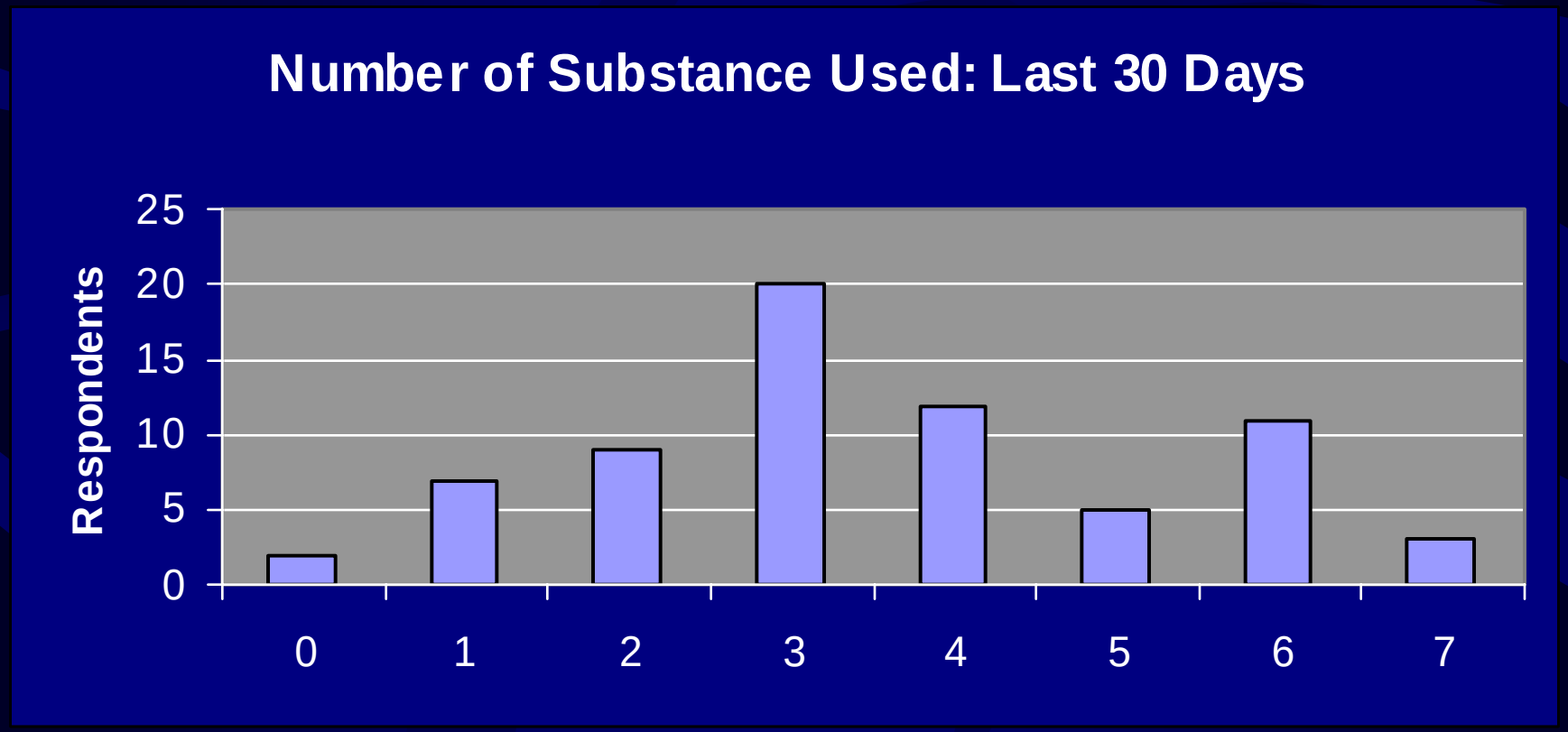
Alcohol	82.5%
Marijuana	82.5%
Heroin	57.8%
Methamphetamine	56.5%
Crack Cocaine	46.3%
Powder Cocaine	44.7%
Ketamine	34.8%
Speedball	21.7%
Inhalants	15.9%
Mushrooms	8.6%
Ecstasy/MDMA	5.8%
LSD	5.8%
GHB	2.9%
Other Drugs	2.9%

Measures of Polydrug Use

- In this analysis, polydrug use is defined by the measure “multiple drug use” (MDU), a count of the number of illegal substances a respondent reported using in the previous 30 days, assessed at both baseline and all follow-up interviews.
- Illegal substances included marijuana, heroin, cocaine, crack, ketamine, LSD, mushrooms, GHB, ecstasy (MDMA), inhalants and ‘other’ drugs.
- Longitudinal change in multiple drug use was assessed using a change score, defined as the difference between MDU at baseline and MDU at the final follow-up interview.

Multiple Drug Use At Baseline

- Respondents reported mean multiple drug use of 3.55 (3.13 – 3.98) substances.



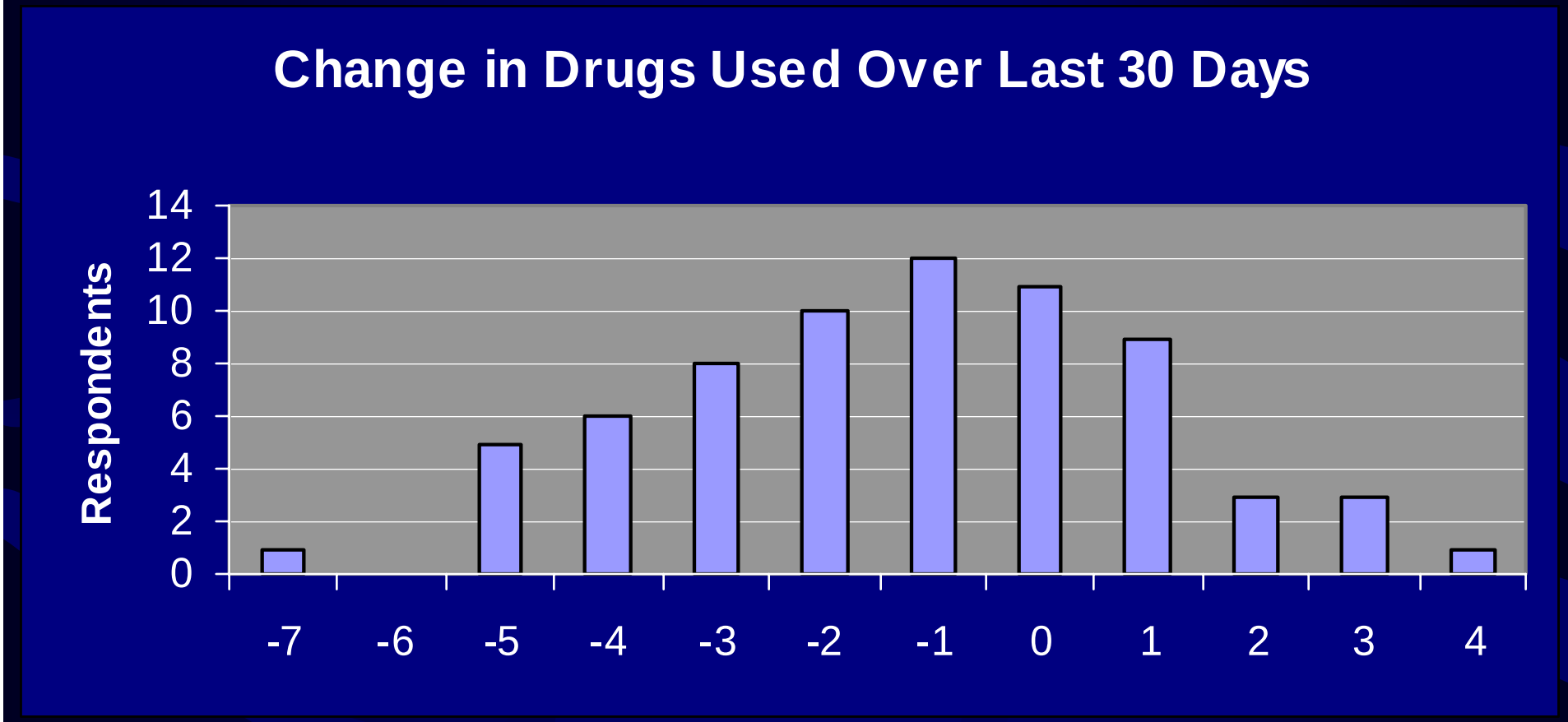
Multiple Drug Use Associations: Baseline Assessment

- Men had a slightly higher 30 day multiple drug use than women.
- Older respondents had a slightly higher multiple drug use than younger respondents.
- Respondents who reported being HCV+ had significantly higher multiple drug use than those who were HCV- or unaware of their HCV status.

Overall Longitudinal Trend

A majority of respondents (60.9%) decreased the number of illegal drugs used during the follow up period, while another 15.9% were unchanged. 23.2% increased the number of drugs used. On average, respondents reduced MDU by 1.22 (0.67 – 1.77) from 3.56 to 2.33.

Final Follow-up: MDU Change



Predictors of Decreased Multiple Drug Use

- Respondents who were older (23-30) at their final follow-up had a significantly greater decrease in MDU than younger respondents. (1.68 mean difference, 95% CI 0.66 - 2.70)
- Respondents who reported being housed at their final follow-up had a significantly greater decrease in MDU than those who were homeless (1.27 mean difference, 95% CI 0.20 – 2.34)
- There were no differences found between men and women or between those who who reported being HCV+ and those who were HCV- or did not know their HCV status.

Regression Model

In a linear model regressing the change in MDU on homeless status and age at the time of final interview, we found an adjusted R^2 of 0.167. Homeless status and age were found to be independent. These two variables combined accounted for 16.7% of the variation in the decrease in MDU.

	Standardized β	P-Value
Housed	-0.285	0.012
Age	-0.338	0.003

Implications

- Interventions aimed at assisting high-risk youth, such as young injection drug users, maintain or find adequate housing may have the effect of reducing the risks associated with multiple drug use.
- Younger IDUs in their late teens or early 20s may particularly benefit from interventions designed to reduce the use of multiple drugs.

Limitations

- This study was not originally designed to examine trends in multiple drug use. High levels of multiple drug use among ketamine IDUs, however, is an important secondary study finding.
- This sample of young ketamine IDUs cannot be considered a representative sample of young multiple drug users.
- The sample size is small. Estimates of effect size could be improved with a larger sample. Additionally a larger sample could allow for a more detailed multivariate model, including additional covariates.
- Additional longitudinal modeling techniques may provide better understanding of changes in multiple drug use.

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