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# SUBSTANCE USE AND PERCEPTIONS OF RISKS AND REWARDS OF OFFENDING

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# BACKGROUND

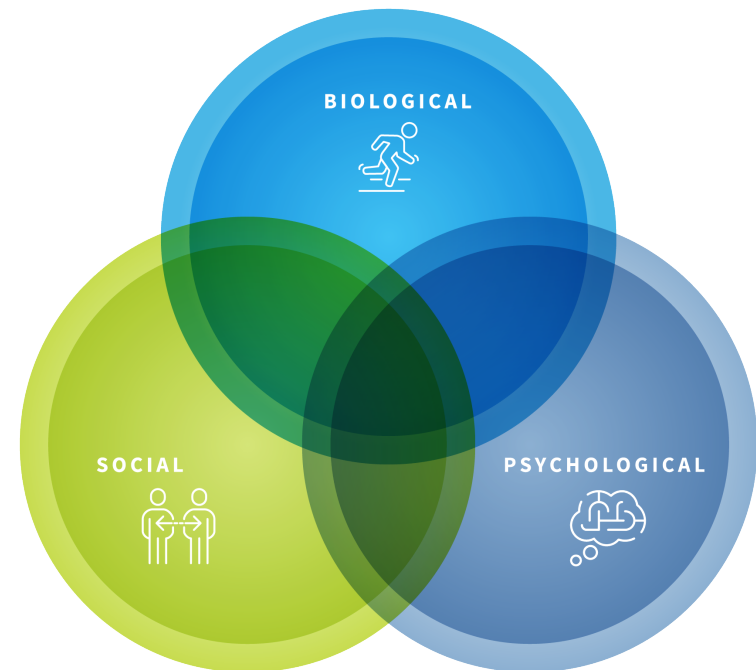
- Substance use related to perceptions of risks and rewards of offending:
  - Adolescent brain development and functions
  - Self-control and sensation-seeking
  - High drive for immediate rewards and gratification during adolescence (Dahl & Spear, 2004; Steinberg, 2008)
- Strong positive correlation between offending and
  - Substance use (Field et al., 2023)
  - Perceptions of risks and rewards related to offending (Loughran et al, 2016)



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# BACKGROUND

- Numerous studies link substance use with lowered sensitivity to risk and heightened sensitivity to rewards
- Prior studies focus on specific substances
  - Marijuana, alcohol, cocaine, sedatives
  - Rarely study various drugs
  - Different substances could differentially influence of youth's perceptions of risks and reward
  - Different biological and social mechanisms



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# DIFFERENTIAL PERCEPTIONS OF RISKS/REWARDS

	Alcohol	Marijuana	Hard Drugs
<b>Perceptions of Risk</b>	<ul style="list-style-type: none"><li>• Reduced inhibition</li><li>• Impaired judgment</li><li>• Decreased ability to assess risks</li></ul>	<ul style="list-style-type: none"><li>• Impair memory and attention</li><li>• Cautious/risk-averse</li><li>• Can heighten anxiety</li></ul>	<ul style="list-style-type: none"><li>• More extreme effects on cognitive functioning</li><li>• Differential effects of depressants and stimulants</li><li>• Reduced perceptions of risk</li></ul>
<b>Perceptions of Rewards</b>	<ul style="list-style-type: none"><li>• Sensitivity to immediate rewards</li></ul>	<ul style="list-style-type: none"><li>• Less sensitive to reward</li><li>• Decreased dopamine signaling and reward sensitivity</li></ul>	<ul style="list-style-type: none"><li>• Sensitivity to immediate rewards</li><li>• Interference with production of dopamine</li></ul>

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# RESEARCH

1. Are different substances (alcohol, marijuana, hard drugs) differentially related to the perceptions of risks of offending (social costs, formal cost)?
2. Are different substances (alcohol, marijuana, hard drugs) differentially related to the perceptions of rewards of offending (intrinsic, social)?



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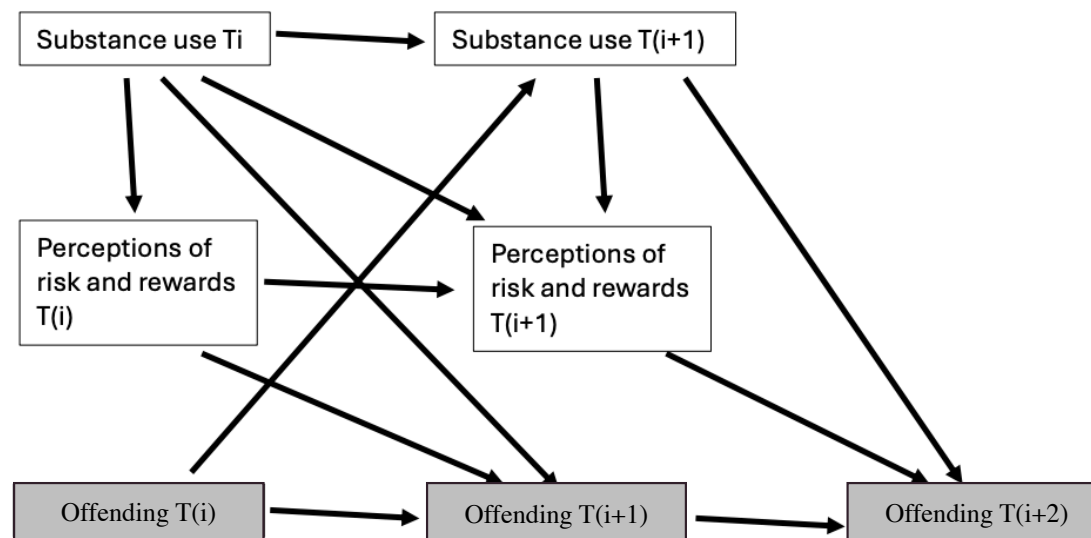
# IMPORTANCE

- Greater theoretical understanding of the relationship between substance use and crime
- Greater understanding of crime throughout the life course
- Understanding of youth substance use
  - Emphasis on decision-making
  - Policy implication – youth substance use prevention and treatment



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# CONCEPTUAL MODEL



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# DATA AND METHOD

- Pathways to Desistance
  - N=1354
  - First six waves (six-month follow-ups)
  - Large multi-site longitudinal study
  - Data from adult and juvenile courts in Maricopa County, Arizona and Philadelphia County, Pennsylvania through 2000-2010
  - Age 14-17 at baseline





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# MEASURES

## Dependent variables

- Perceptions of risks and rewards
  - Risks
    - § Formal costs
    - § Social costs
  - Rewards
    - § Intrinsic rewards
    - § Social rewards

## Independent and control variables

- Independent variable – substance use
  - Any substance use in the past 6 months
  - Cannabis, alcohol, hard drugs (cocaine, methamphetamines, psychedelics, etc.)
- Control variables – social variables
  - Delinquent peers
  - Unstructured socializing

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# PERCEPTIONS OF RISKS/REWARDS QUESTIONS

- Formal costs:
  - "How likely is it that you would be caught or arrested for the following crimes?"
  - Scale of 1-10, mean of 7 items
- Social costs:
  - "If the police catch you doing something that breaks the law, how likely is it that you would lose respect from close friends?"
  - Scale 1-5, mean of 5 items (6 items if respondent has a boyfriend/girlfriend)
- Intrinsic rewards:
  - "How much thrill or rush do you get from the following things?"
  - Scale of 1-10, mean of 7 items
- Social rewards:
  - "How much do you agree or disagree with the following statement: 'If I take things, other people my age will respect me more.'"
  - Scale of 1-4, mean of 5 items

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## DESCRIPTIVE STATISTICS – DEMOGRAPHICS (BASELINE)

Variable	Frequency (percent)
Sex	
Percent Female	13.52
Percent Male	86.48
Race	
White	20.24
Black	86.48
Hispanic	33.53
Other	4.80
Age	
Mean	16.553 (1.150)
Range	14-20

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# DESCRIPTIVE STATISTICS – SUBSTANCE USE

Substance	Frequency (percentage)
Marijuana	
Not at all	67.25
Used at least once	32.75
Alcohol	
Not at all	61.46
Used at least once	38.54
Hard Drugs	
Not at all	85.88
Used at least once	14.12

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# PATH MODELS – RISKS/REWARDS OF OFFENDING

Drug	Model 1 Social Costs	Model 2 Social Reward	Model 3 Formal Cost	Model 4 Personal Reward
Alcohol	-.007 (.012)	.014 (.021)	-.009 (.043)	.027 (.025)
Marijuana	.002 (.014)	.001 (.026)	.040 (.050)	.031 (.030)
Hard Drugs	<b>.143* (.059)</b>	.154 (.098)	-.005 (.207)	<b>.324* (.146)</b>

\*p<.05 \*\*p<.01 \*\*\*p<.001

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# EQUALITY OF COEFFICIENTS Z-SCORES

Test	Model 1 Social Cost	Model 2 Social Reward	Model 3 Personal Cost	Model 4 Personal Reward
Marijuana vs. Alcohol	-0.625	0.559	-0.791	0.000
Marijuana vs. Hard Drugs	<b>-3.468*</b>	-0.790	-0.365	-1.572
Alcohol vs. Hard Drugs	<b>-3.224*</b>	-0.995	-0.121	-1.563

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# RESULTS

- Alcohol and marijuana use are **not associated** with perceptions of risks and rewards of offending
- Hard drug use
  - Positively associated with perceptions of **social costs** of offending ( $b=.143, p < .05$ )
  - Positively associated with perceptions of **personal rewards** of offending ( $b=.324, p<.05$ )

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# DISCUSSION

- No evidence that substance use is related to perceptions of risks and rewards
  - Exception: hard drug use with no marijuana or alcohol use
- Evidence that different drugs have different associations with perceptions of risks and rewards
- Potential biological or social mechanisms:
  - Stronger stigma associated with hard drugs
  - Stronger negative impacts on brain development
  - Hard drugs associated with other harmful behaviors

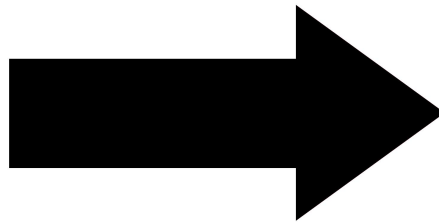




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# FUTURE DIRECTIONS

- Examine mediating effects of perceptions of risks and rewards of offending
- Understand associations with offending
- Examine polysubstance use
- Dependence vs. prevalence



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# CONCLUSION



Findings provide important information regarding substance use and perceptions of risks and rewards



Future research will provide insight into role of offending



Important to distinguish between different kinds of substances

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# THANK YOU!

Reach out to [akn5535@psu.edu](mailto:akn5535@psu.edu) for references and more information!

