

# Risk Taking and Health Behaviors in Late Adolescence: Co-Occurrence, Predictors, and Consequences

SRCD Biennial Meeting  
March 31, 2007

Cameron McPhee,  
Elizabeth C. Hair, PhD,  
Kristin A. Moore, PhD,  
Thomson Ling,  
Michelle McNamara &  
Claire Brindis, DrPH



# Background

- Risky and delinquent behaviors pose great threats to the health and well-being of adolescents and young adults.
- Substance abuse, delinquency, sexual risk-taking, and lack of exercise are correlated behaviors that tend to co-occur in adolescents.
- Few studies have examined the interconnections of negative and positive health behaviors, or their relationship among broader individual, family, or peer-level characteristics of the youth's environment using a person-centered approach.

# Predictors of Health Risk Behaviors

- Many predictors of health risk behaviors fall in the microsystem of Bronfenbrenner's Ecological Model:
  - Individual
    - Mental & physical health
  - Peer Characteristics
    - Peer involvement with substances & delinquency
  - Family Characteristics
    - Parental awareness, family routines, family religiosity
  - Community Characteristics
    - Crime rates, Community Socioeconomic Status

# Objectives

- To investigate how environmental characteristics (i.e., individual, peer, family, and neighborhood characteristics) predict the **co-occurrence** of health-related behaviors (e.g., delinquency, smoking, drug use, drinking, sexual behavior, and exercise).
- To investigate how these co-occurrences of health-related behaviors are related to later young adult outcomes (i.e. dropping out of school, disconnection, and voting behavior).

# Hypotheses

- We hypothesized behaviors would cluster into multiple distinct groups:
  - A high risk group: reporting participation in multiple negative behaviors at relatively high rates and infrequently reporting engaging in positive health-behaviors.
  - A low risk group: reporting engaging in very few negative behaviors while more frequently reporting participation in positive health-behaviors.
  - A moderate risk group: reporting engaging in one or two of the negative behaviors, but also reporting participation in the positive health behaviors.

# Hypotheses

- We also hypothesized that...
  - Positive family, peer and neighborhood influences could protect youth from engaging in risky health-behaviors.
  - Membership in groups characterized by riskier behaviors will predict less positive and more negative outcomes.

# National Longitudinal Survey of Youth 1997 (NLSY97)

- A nationally representative sample of approx. 9,000 adolescents, born 1980 to 1984 and living in U.S. households in 1997.
- Investigates the transition from adolescence to adulthood, focusing on schooling, employment and family formation.
- The NLSY97 also collects data on a broad array of child and family interactions and relationships.

# Sample

- Sample consisted of 4,586 respondents who were 12 to 14 years old in December 1996
  - This subset received relevant family-level questions
  - They had valid data for all the predictors of risk-taking included in our analyses
  - They did not need complete data on all risk-behaviors due to FIML missing data estimation techniques

# Measures – Health Risk Behaviors

All Health behaviors were reported in Round 6 (2002) and were measured dichotomously

- Delinquency behaviors (e.g., running away, stealing, gang membership, attacking someone, being arrested)
- Daily smoking behavior
- Dangerous drinking behaviors (binge drinking & driving while intoxicated)
- Non-marital sex without a condom
- Marijuana and cocaine use
- Exercised 3+ times in the past week

# Measures – Predictors

## Individual Characteristics

- Gender
- Age
- Race/ethnicity
- Physical health (1997)
- Mental health (1997)
- Academic achievement (8<sup>th</sup> grade grades)

## Peer Characteristics

- Positive peer behavior (e.g. participate in sports, plan to go to college, volunteer) (1997)
- Negative peer behaviors (e.g. use drugs, cut class, belong to gangs) (1997)

# Measures – Predictors

## **Family Environment**

- Family structure (1997)
- Poverty (1997)
- Maternal monitoring (1997-2001)
- Family routines (1997-2000)
- Parent/youth relationship (1997-1999)

## **Neighborhood**

- County unemployment rate (1997)
- Percentage of county residents with a college degree (1997)

# Measures – Outcomes

- Not employed and not in school (2003)
- Arrested since last round (2003)
- No high school diploma or GED (2003)
- Voted in election (2004)
- Positive mental health (2004)
- Positive physical health (2004)

# Analyses

- Latent class analysis was used to determine if different groups or clusters of young adults are more likely to engage in different combinations of health behaviors.
- LCA allows us to determine if certain youth, family, peer, or neighborhood characteristics predict the likelihood that individuals will fall into these different groups (in comparison to a reference class).
- Analyses controlled for socio-demographic factors
- LCA accounts for increased error due to the unobserved nature of the groups.
- Logistic and OLS regression analyses were used to predict later young adult outcomes from most likely health-risk class membership.

# Results

- We identified four clusters of risky behaviors or “risk-profiles”
  1. A **low risk group** of adolescents who engage in no risky behaviors and are relatively likely to exercise.
  2. A **high risk group** of adolescents who are likely to participate in numerous risky behaviors and unlikely to exercise .
  3. A **low-moderate risk group** composed of individuals who report higher levels of **cigarette smoking** and **unprotected sex** than the low-risk group and lower frequencies of exercise.
  4. A **moderate risk** group composed of individuals who **drink heavily** but are also likely to **exercise**.

# Results – Probabilities of class membership

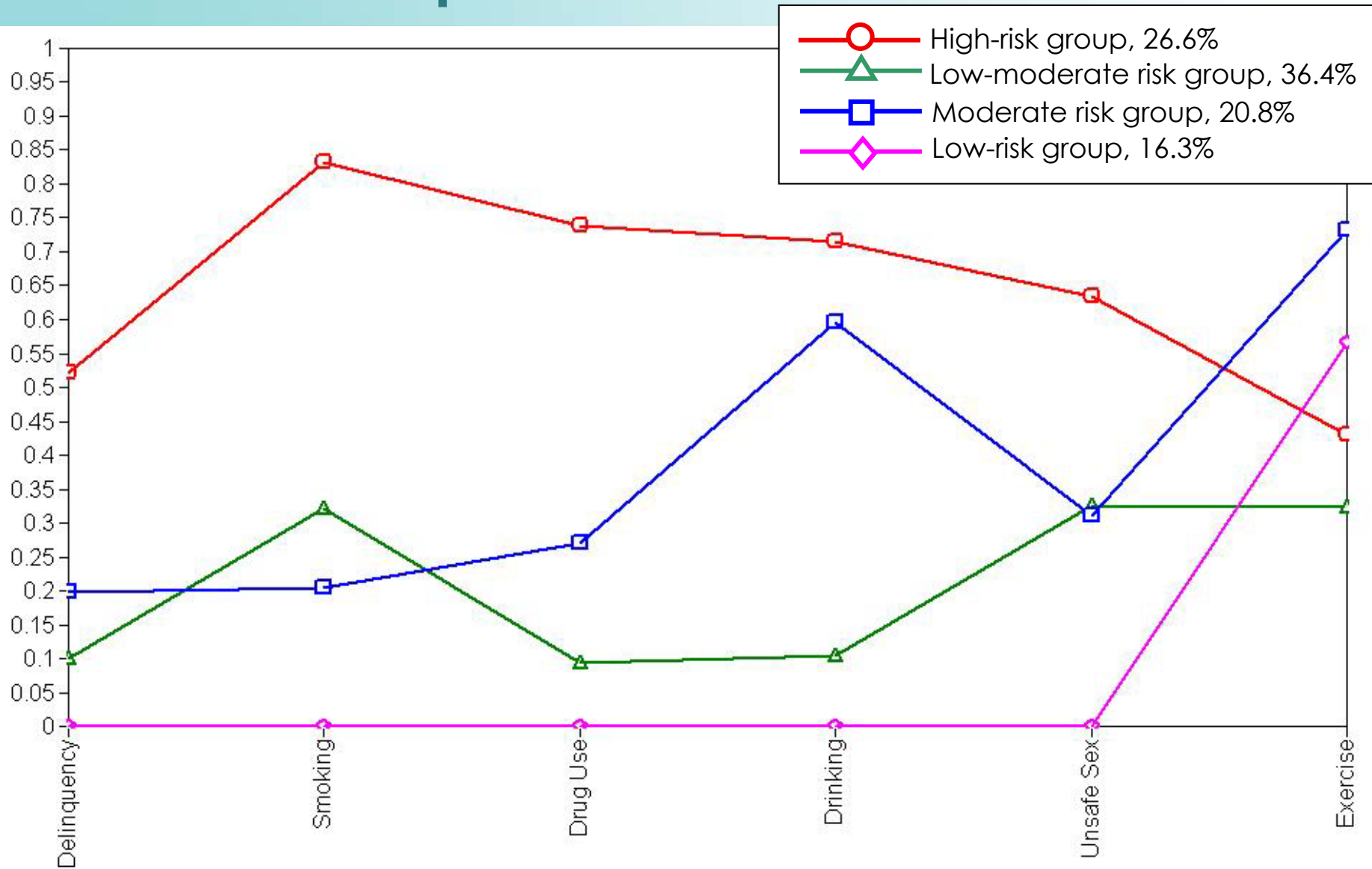


Table 1. Demographic characteristics of young adults ages 18-22 by most likely class membership<sup>1,2,3</sup>

<b>Characteristics</b>	<b>Full Sample</b>	<b>Cluster Group</b>			
		<b>High-risk Group (Class 1)</b> N=1100	<b>Low-Moderate Risk Group (Class 2)</b> N=1874	<b>Moderate Risk Group (Class 3)</b> N=716	<b>Low-Risk Group (Class 4)</b> N=896
<i>Adolescent Characteristics</i>					
Gender					
Male	50.79	59.84	33.71	73.01	50.14
Female	49.21	40.16	66.29	26.99	49.86
Race/Ethnicity					
White (Non-Hispanic)	67.26	78.44	53.78	79.74	65.78
Black (Non-Hispanic)	15.25	9.26	24.21	8.40	12.88
Hispanic	12.62	9.19	14.08	10.62	16.50
Other	4.87	3.12	7.93	1.24	4.84
Poor Mental Health Range 1-3 (1997)	.53 (.62)	.64 (.73)	.61 (.65)	.36 (.58)	.36 (.54)
Academic achievement at 8th Grade (range 1-8)	5.78 (1.74)	5.29 (2.00)	5.27 (1.70)	6.60 (1.54)	6.67 (1.33)
<i>Family Characteristics</i>					
Family Structure (1997)					
Two biological/adoptive parents	56.71	50.50	42.36	73.19	77.43
One bio-, one step-parent	13.92	18.61	16.50	8.90	7.11
Single biological/adoptive parent	25.59	28.14	35.58	15.81	12.08
Other	3.78	2.75	5.56	2.09	3.39
Income-to-poverty ratio (1997)					
Below 100% of poverty	12.58	11.09	17.81	5.27	11.50
100-199% of poverty	15.70	15.99	23.97	5.78	8.72
200-399% of poverty	29.23	31.73	24.33	31.50	32.96
At or above 400% of poverty	19.66	19.32	11.66	35.69	20.53
Missing Poverty	22.83	21.87	22.23	21.77	26.29
<i>Family Processes</i>					
Mean maternal monitoring (1997-2001)	9.84 (2.57)	9.02 (2.76)	9.23 (2.68)	10.76 (2.16)	11.28 (2.05)
Mean family routines (1997-2000)	7.76 (3.30)	6.63 (3.16)	7.24 (3.25)	8.12 (3.20)	9.98 (3.32)
<i>Peer Characteristics</i>					
Mean negative peer behaviors (1997)	1.81 (.92)	2.01 (1.08)	1.94 (.96)	1.652 (.91)	1.45 (.71)
<i>Neighborhood Characteristics</i>					
Percent of county residents with a college degree (1997) (mean)	19.81 (8.32)	19.51 (9.06)	18.31 (7.39)	22.64 (10.33)	20.48 (8.69)

Note: <sup>1</sup> Individuals are assigned to the class for which they have the highest probability of belonging. <sup>2</sup> Some demographic characteristics included on the table were not used as predictors in the models due to multicollinearity and missing data issues. <sup>3</sup> Only those characteristics found to significantly predict class membership in a separate set of regression analyses are reported in this table.

Source: National Longitudinal Survey of Youth, 1997 Cohort (NLSY97)

# Predictors of Class Membership: High risk group

High-risk group members (in comparison to the low-risk group)

- Are more likely to be white
- Are more likely to report mental health problems at round 1
- Are less likely to come from a 2 bio-parent family
- Are more likely to have peers that partake in negative behaviors
- Have lower levels of academic achievement at 8<sup>th</sup> grade
- Have fewer family routines
- Have lower levels of maternal monitoring

# Predictors of Class Membership: Moderate risk group – “Jock” group

Moderate risk group members (in comparison to the low-risk group)

- Are more likely to be male
- Are more likely to come from higher-income homes
- Are more likely to have peers that partake in negative behaviors
- Have fewer family routines
- Are more likely to live in a county with a higher concentration of college degree holders

# Predictors of Class Membership: Low-moderate risk group – Smoking & Sex

Low-moderate risk group members (in comparison to the low-risk group)

- Are more likely to be female
- Are less likely to come from a 2 bio-parent family
- Are more likely to report mental health problems at round 1
- Have lower levels of academic achievement at 8<sup>th</sup> grade
- Have fewer family routines
- Have lower levels of maternal monitoring
- Are less likely to live in a county with a higher concentration of college degree holders

# Results – Outcomes

Table 2. Logistic & OLS regressions predicting young adult outcomes from health-risk class membership for young adults ages (18-22)

	Logistic Regression								OLS Regression			
	Negative Outcomes				Positive Outcome				Positive Outcome			
	Not Employed & Not in School (2003)	Arrested in last 12 months (2003)	No HS Diploma or GED (2003)	Physical Health (2004)	Voted in Last Election (2004)	Mental Health (2004)			Beta Coeff.	Sig.		
	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.	Odds Ratio	Sig.				
<b>Individual Characteristics</b>												
Health-risk group												
Class 1: High-risk	1.81	***	9.08	***	3.11	***	-0.09	***	0.72	**	0.59	***
Class 2: Smoke/Sex	1.66	**	2.12	*	2.41	***	-0.05		0.70	**	0.75	*
Class3: Drinking/Exercise	0.72		3.38	**	1.37		-0.01		0.94		0.91	
Class 4: Low Risk		ref.		ref.		ref.		ref.		ref.		ref.

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

Source: National Longitudinal Survey of Youth, 1997 Cohort (NLSY97)

# Class Membership as a Predictor of Outcomes – High-Risk Group

The high-risk group has significantly worse outcomes than the low-risk group on all outcomes we examined. This group is

- 9 times more likely to be arrested
- 3 times more likely to drop out of school
- 1.8 times more likely to be unemployed or out of school
- 1.28 times less likely to vote
- 1.42 times less likely to report good physical health
- Less likely to report positive mental health

# Class Membership as a Predictor of Outcomes – Low-Moderate Risk Group

The low-moderate risk group has significantly worse outcomes than the low-risk group on almost all outcomes we examined. This group is

- 2 times more likely to be arrested
- 2.4 times more likely to drop out of school
- 1.6 times more likely to be unemployed or out of school
- 1.3 times less likely to vote
- 1.25 times less likely to report good physical health
- Less likely to report positive mental health

# Class Membership as a Predictor of Outcomes – Moderate-Risk Group

The moderate-risk group only differed significantly from the low-risk group on one outcome. This group was

- 3 times more likely to be arrested

# Conclusions

- Four risk-behavior profiles emerged, with a high-risk and low-risk group as hypothesized as well as two moderate groups that exhibited mixed behaviors.
- Positive microsystem characteristics (more maternal monitoring, more educated neighbors) were associated with membership in the low-risk group, while negative microsystem characteristics (fewer family routines, more negative peers) were associated with membership in higher-risk groups.

# Conclusions

- Membership in any of the groups reporting negative behaviors was significantly associated with poorer outcomes, though only membership in the low-moderate or high-risk groups predicted to multiple negative outcomes.

# Implications

- Members of the moderate risk group come from more advantaged backgrounds (2 bio-parent homes with higher incomes in better-educated counties) which may serve as a protective barrier from negative outcomes.
- Even teens who exhibit relatively low levels of risky behavior (such as members of the low-moderate risk group) are at increased risk for negative outcomes during the transition to adulthood.

# Research in the service of children



**This research was supported in part by a subcontract for the grant (# U45 MC00023) from the Department of Health and Human Services to the University of California, San Francisco to Dr. Elizabeth Hair, PhD**

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**For questions, please contact  
Dr. Elizabeth Hair  
[ehair@childtrends.org](mailto:ehair@childtrends.org)**