Changes in Risk Behavior Profiles from Adolescence to Young Adulthood

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Note: This extended abstract comes from Dr. Sunder's dissertation work. Dr. Rudkin was her primary advisor. We are in the process of dividing the larger body of work into a series of shorter research papers. The analyses proposed for this PAA paper will focus on change and stability between Waves 1 and 3 of the Add Health study.

The majority of adolescent and young adult morbidity and mortality in the U.S. stems from preventable health risk behaviors, engagement in which tends to be correlated. Much of the existing work on the interrelatedness of multiple problem behaviors has been limited by reliance on cross-sectional, small-area samples. This paper examines interrelatedness among risk behaviors and change in risk behavior profiles. The data come from the National Longitudinal Study of Adolescent Health, a three-wave, cohort study of a nationally representative sample of U.S. teens followed into young adulthood.

First, latent class analysis was used to divide respondents in each wave into subgroups based on recent engagement in multiple risk behaviors (sexual risk taking, alcohol consumption, binge drinking, cigarette smoking, marijuana use, and illicit drug use). Four risk profiles (low risk, experimental drug use, drinker, and high risk) were identified at Waves 1 and 2 and three risk profiles (low risk, drinker, and high risk) were identified at Wave 3. Analyses were conducted using sample weights. Multiple goodness of fit statistics were used to determine the appropriate number of risk profiles. Tests also indicated that a similar latent class solution was appropriate for all racial and ethnic groups and for both genders. In other words, the multiple risk behaviors were interrelated in a similar way for all demographic subgroups.

Members of the low risk profile exhibited low prevalence of risk on all behaviors and members of the high risk profile engaged in multiple risk behaviors. The drinker profile was characterized by a higher prevalence of binge drinking and some smoking. The experimental use profile included adolescents who had tried alcohol, cigarettes, or drugs but who generally were not regular users. The distribution of membership in the risk profiles is described in Table 1. Low risk was the modal category in all three waves. Membership in the drinker profile became more common as the cohort aged. Coding of the risk behaviors emphasized recent involvement not ever use; thus, respondents could move from a higher risk to a lower risk category over time. Table 2 illustrates individual change and stability in group membership between waves 1 and 3. Nearly half of the respondents were in similar risk profiles at the two waves, but there was marked movement into both higher and lower risk groups.

Next, multinomial logistic regression was used to examine whether risk profile membership and change in membership across waves were related to demographic factors (gender, race/ethnicity, age) and baseline indicators of family status (household income, parental education, family structure). Analyses were conducted using sample weights and adjusting for survey design effects. Correlates of Wave 1 risk profile membership are reported in Table 3. Male, non-Hispanic white, and older adolescents were more likely to be in the drinker and high risk profiles during adolescence compared to female, minority, and younger respondents. During adolescence, living in a single parent family (versus a two biological parent family) was associated with being in any higher risk profile compared to the low risk profile. Correlates of Wave 3 risk profile membership are reported in Table 4. The first model reported shows cross-sectional correlates. The second model controls for wave 1 membership and thus assesses correlates of change or stability in group membership. In young adulthood, males and whites are more likely to remain in or move into the drinker and high risk categories. Age effects become less consistent, but older age is associated with a lower likelihood of being in the highest risk category. In contrast to adolescence, family structure is not a significant predictor of profile membership in young adulthood. Rather, family socioeconomic status becomes a significant correlate with young adults from higher income and more educated households being more likely to be in the drinker or high risk

groups. This result may be due to higher levels of college enrollment in the higher SES groups and the influence of college drinking and drug use cultures. We are examining this interpretation in additional analyses.

Table 1: Risk Profile Membership in Waves 1, 2 and 3 (number, percentage)

	Low Risk	Experimental Use	Drinker	High Risk
Wave 1	8739 (45.2%)	4338 (27.3%)	2546 (13.7%)	2792 (13.9%)
Wave 2	7377 (55.9%)	1873 (13.7%)	2304 (17.3%)	1754 (13.2%)
Wave 3	4613 (43.8%)		4055 (36.9%)	1979 (19.3%)

Table 2: Change and Stability in Risk Profile Membership between Waves 1 and 3 (n=10,457)

	Wave 3 Profile		
Wave 1 Profile	Low Risk (n=4278)	Drinker (n=3966)	High Risk (n=2213)
Low Risk (n=5006)	50.0%	36.7%	13.2%
Experimental Use (n=2850)	37.6%	38.4%	24.0%
Drinker (n=1295)	29.0%	47.3%	23.8%
High Risk (n=1306)	24.9%	32.3%	42.8%

Table 3: Predicting Wave 1 Risk Profile Membership (Odds Ratios from Multinomial Logistic Regression)

	Experimental Use vs. Low-Risk‡ OR	Drinker vs. Low-Risk‡ OR	High-Risk vs. Low-Risk‡ OR
Demographic Variables			
Gender (Reference=Male)	1.01	0.78	0.84*
Race/Ethnicity (Reference=Non-Hispanic white)			
Non-Hispanic black	0.70***	0.25***	0.30***
Hispanic, all races	0.67***	0.70*	0.69*
Other	0.76	0.46***	0.48**
Age (in years)	1.19***	1.55***	1.59***
Indicators of Family Status			
Household Income (Reference $0-$19,999)			
$20,000-$34,999	1.15	1.30	1.16
$35,000-49,999	0.97	1.06*	1.15
$50,000-64,999	1.00	1.20*	1.38
$65,00 and above	1.05	1.32	1.45*
Missing	0.89	0.86	0.94
Highest parental education (Reference=Less than high school)			
Completed high school/GED (including some college)	0.98	1.09	1.26
Completed college (includes graduate/professional degrees)	0.74*	0.75	0.97
Missing	1.19	1.55*	1.60*
Family Structure (Reference=Two biological parents)			
Any other two-parent home	1.85***	1.43***	1.73***
Single parent only	1.69***	1.53***	3.01***
Other family types or missing	1.65***	1.49**	2.19***

*p<0.05, **p<0.01, ***<0.001
†Sample Size 18415 adolescents
‡Experimental use (Profile 2), drinker (3), and high-risk (4) profiles compared to reference low-risk profile (1)

Table 4: Predicting Wave 3 Risk Profile Membership, Controlling for Wave 1 Risk Profile (Odds Ratios from Multinomial Logistic Regression)

	Drinker vs. Low-Risk‡		High-Risk vs. Low-Risk‡		High-Risk vs. Drinker†‡	
	OR	OR	OR	OR	OR	OR
Demographic Variables						
Gender (Reference=Male)	0.61***	0.61***	0.43***	0.41***	0.71***	0.68***
Race/Ethnicity (Reference=Non-Hispanic white)						
Non-Hispanic black	0.29***	0.31***	0.32***	0.38***	1.11	1.21
Hispanic, all races	0.91	0.93	0.70*	0.69*	0.77	0.74*
Other	0.52***	0.55***	0.46***	0.52***	0.90	0.94
Age (in years)	1.08***	1.03	0.96	0.82***	0.89***	0.79***
Indicators of Family Status						
Household Income (Reference $0-$19,999)						
$20,000-$34,999	1.49***	1.48***	1.58***	1.55***	1.06	1.05
$35,000-49,999	1.37***	1.40**	1.66***	1.74***	1.21	1.24
$50,000-64,999	1.46*	1.48***	2.13*****	2.09***	1.46**	1.41*
$65,00 and above	2.04***	2.04***	3.03***	3.02***	1.48***	1.48***
Missing	1.28*	1.32*	1.33*	1.38*	1.04	1.05
Highest parental education (Reference=Less than high school)						
Completed high school/GED (including some college)	1.81***	1.83***	1.84***	1.90***	1.02	1.03
Completed college (includes graduate/professional degrees)	2.07***	2.18***	2.35***	2.65***	1.14	1.21
Missing	1.51*	1.48*	2.12***	2.09**	1.40	1.41
Family Structure (Reference=Two biological parents)						
Any other two-parent home	0.87	0.83	1.14	1.00	1.31*	1.21
Single parent only	0.99	0.93	1.53*	1.16	1.54***	1.24*
Other family types or missing	0.78	0.74*	1.13	0.93	1.46*	1.26
Wave 1 Risk Profile Membership (Reference=Low-risk)						
Experimental Use vs. Low-Risk		1.51***		3.02***		2.00***
Drinker vs. Low-Risk		2.07***		3.89***		1.88***
High-Risk vs. Low-Risk		1.78***		9.40***		5.28***
L-squared (-2 Log Likelihood)§	20935.00	20162.50				
Degrees of Freedom	32	38				

*p<0.05, **p<0.01, ***<0.001
†Sample Size 10453 adolescents
‡Wave 3 Risk Profile
§Controlling for Wave 1 profile significantly improves model fit, p<0.001