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Age at Occurrence of Trauma and Risk for Alcohol Use Disorder in a Female Twin Sample

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Background

- Parental alcohol problems and early separation from parents are associated with increased risk for early trauma (Hanson et. al, 2006; Jaffee et. al, 2002; Kessler et. al, 1997)
- Evidence is accumulating that early trauma can have long-lasting effects on risk for depression (Canli et. al, 2006, Teicher et. al, 2004)
- Early trauma is associated with increased risk for alcohol abuse and dependence (Macmillan et. al, 2001)
- Question: Does early vs. later trauma have a stronger association with risk for alcohol use disorder with and without comorbid depression?

Aims

1. Examine associations of parental alcohol problems and early separation from parents with risk for trauma, alcohol use disorder (AUD), and AUD+MDD (major depressive disorder)
2. Examine associations of trauma, parental alcohol problems, and early separation from parents with risk for AUD and AUD+MDD, accounting for the temporal association of trauma with onset of AUD and MDD

Sample

- Twins born between 1975 and 1987 ascertained using Missouri State birth records and recruited into the Missouri Adolescent Female Twin Study (MOAFTS, Heath et al., 1999).
- Data are derived from a diagnostic interview administered in 2002.
- Responses from 3718 twins who had complete data on alcohol use, depression, and trauma variables are used in this analysis.
 - Ages at data collection ranged from 18 to 29

Measures

- Alcohol Use Disorder (AUD) = DSM-IV-defined Alcohol Abuse OR Alcohol Dependence
 - Age at onset AUD = Age when first met criteria for Abuse or Dependence
- Depression (MDD) = DSM-IV-defined
 - Age at onset MDD = age at first major depressive episode
- AUD and AUD + MDD are mutually exclusive diagnostic categories. AUD+MDD reflects the temporal co-occurrence of both disorders

Measures

- Parental alcohol problems = Twin report on Mother and Father alcohol use in response to questions:
 - Has drinking ever caused your mother/father to have problems with health, family, job or police, or other problems?
 - Have you ever felt that your mother/father was an excessive drinker?
- Early separation from parents = Period of 12 months or more before age 18 when twin lived without biological mother/father

Measures

History of trauma is based on self-report during interview. Assaultive and Non-Assaultive trauma categories were constructed by grouping items as below. Individuals endorsing any assaultive events were assigned to the assaultive category. Individuals endorsing only non-assaultive events were assigned to the non-assaultive category.

Assaultive	Non-Assaultive
Childhood neglect	Life-Threatening Accident
Childhood physical abuse	Fire, flood, or natural disaster
Rape	Witness injury or killing
Sexual Molestation	
Serious physical assault	
Threatened with weapon or kidnapped	

Methods

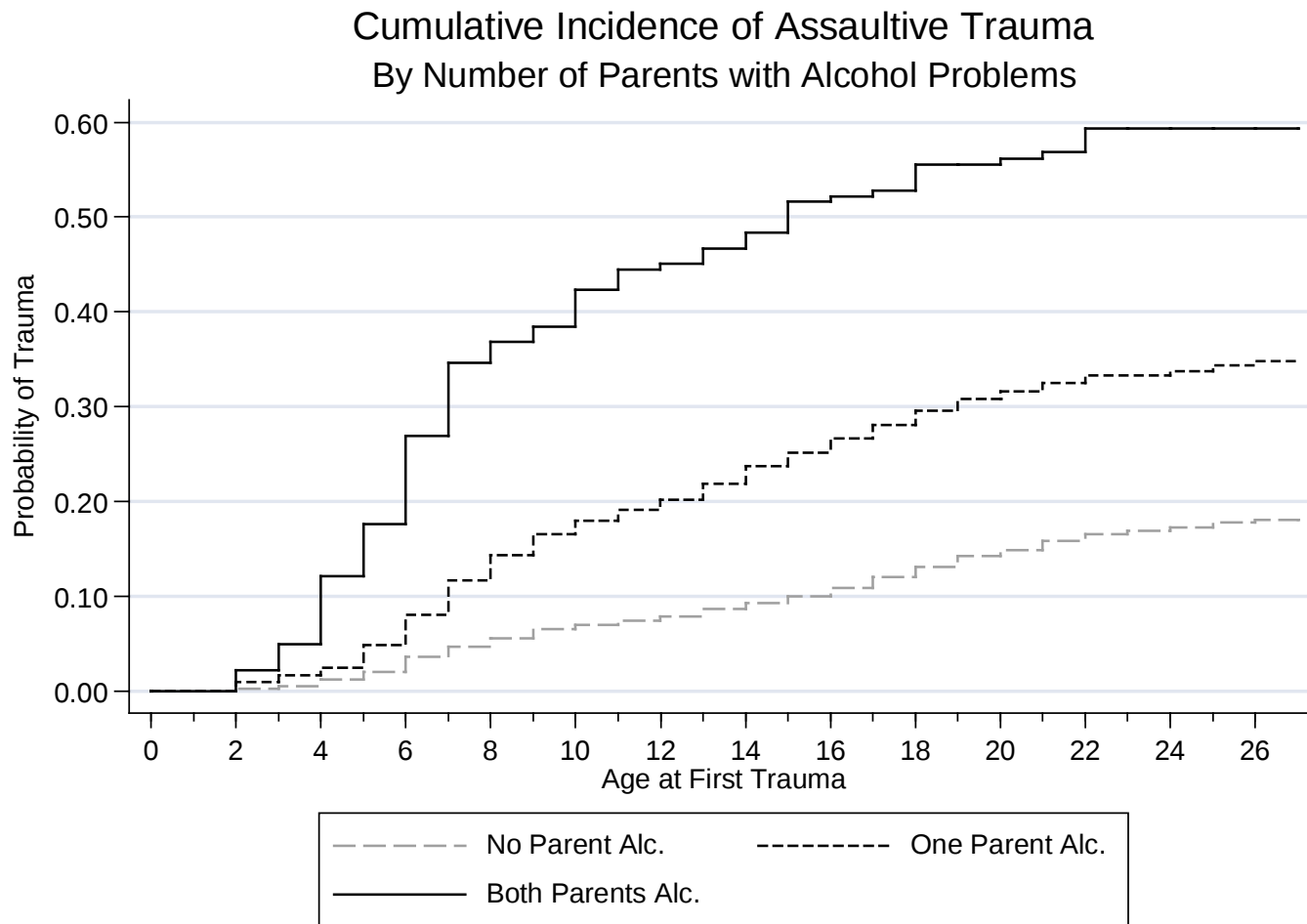
- Person-year data files were created which reflected, for each year of each woman's life to the time of interview, her cumulative experience of trauma and status on AUD and MDD
- Cox regression was used to determine differences in risk according to age at trauma and age at onset of AUD and AUD+MDD
- Associations of trauma categories with risk for AUD and AUD+MDD were examined before and after including parental alcohol problems and separation from parents in equation
- Ethnicity was a control variable in all regressions with trauma as outcome variable. Regressions with AUD and AUD+MDD as outcomes were conditional on alcohol use.

Prevalence (%) of Age at First Trauma, Parental Alcohol Problems, and Separation from Parents by Diagnostic Category

	AUD-MDD- (N=2693)	AUD+MDD- (N=251)	AUD+MDD+ (N=182)
Assaultive trauma			
Age 0-17	13.0	23.5	54.4
Age 18+	2.4	5.2	9.3
Nonassaultive trauma			
Age 0-17	20.1	33.5	37.9
Age 18+	7.0	10.0	13.2
Parental Alcohol Problems			
One parent	22.6	37.8	41.2
Both parents	3.3	6.0	13.2
Separation from parents			
One parent	17.5	15.1	13.7
Both parents	45.3	57.8	71.4

Note: AUD-MDD+ category not shown

Parental Alcohol Problems and Assaultive Trauma



Log rank statistic (2) = 324.44, $p < .0001$

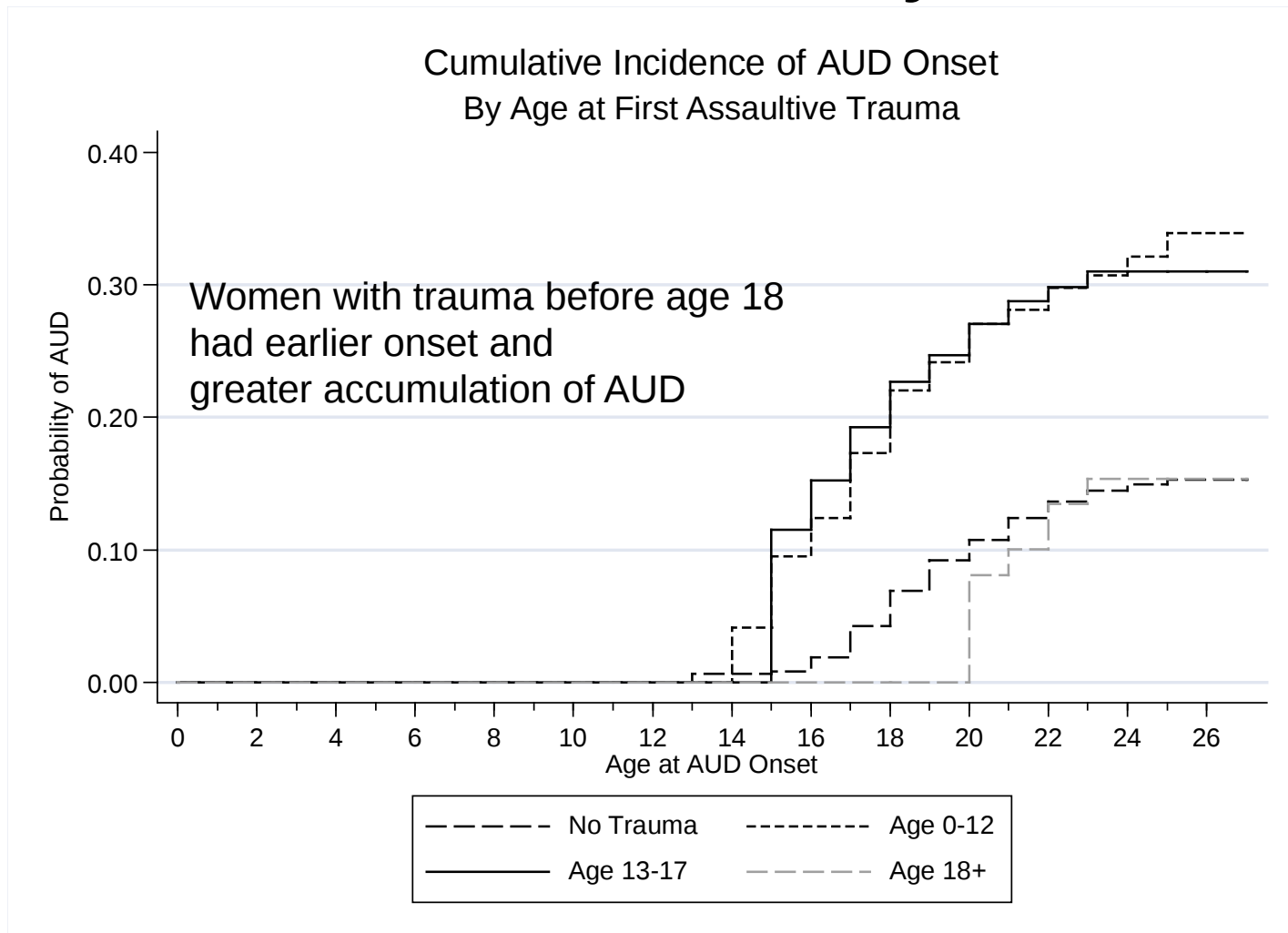
Parental Alcohol Problems and Separation from Parents Predict Assaultive Trauma

Early separation from father predicts trauma before age 13 but not after

	HR	95% CI
Parental alcohol problems		
One parent	2.04*	1.81-2.30
Two parents	4.17*	3.29-5.29
Early separation from mother	2.52*	2.03-3.12
Early separation from father		
trauma age 0-12	2.52*	2.03-3.12
trauma age 13-17	1.28	0.94-1.73

* p<.05, Controlling for ethnicity

Assaultive Trauma and Cumulative Risk for AUD-only



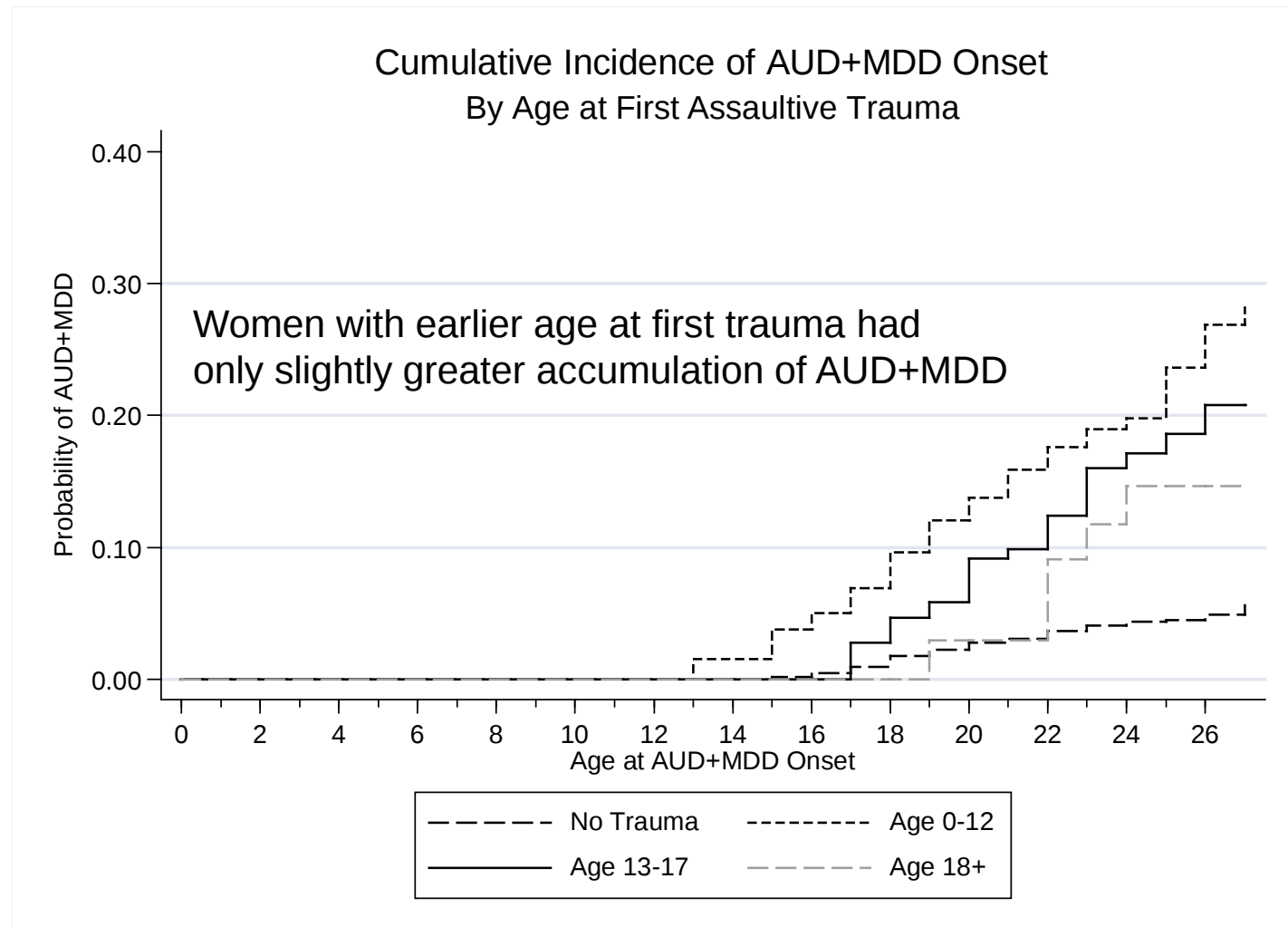
Log rank statistic (3) = 38.19, $p < .0001$; trauma groups only: Log rank statistic (2) = 0.53, $p = .77$

Predicting AUD-only Onset

	HR	95% CI
Assaultive trauma		
AUD onset < age 18	2.77*	1.96-3.91
AUD onset age 18+	1.60*	1.11-2.31
Nonassaultive trauma	1.84*	1.38-2.45
Parental alcohol problems		
One parent	1.43*	1.21-1.70
Two parents	2.06*	1.46-2.89
Early separation from parents		
AUD onset < age 13, one parent	2.17*	1.54-3.06
two parents	4.72*	2.37-9.39
AUD onset age 13+	1.01	0.88-1.17

* p<.05

Assaultive Trauma and Cumulative Risk for AUD+MDD



Log rank statistic (3) = 130.66, $p < .0001$; trauma groups only: Log rank statistic (2) = 0.44, $p = .80$

Predicting AUD+MDD Onset

	HR	95% CI
Assaultive trauma	4.32*	3.02-6.17
Nonassaultive trauma	1.21	0.73-2.02
Parental alcohol problems		
One parent	1.39*	1.12-1.73
Two parents	1.93*	1.24-3.00
Early separation from parents		
One parent	1.19	0.96-1.47
Two parents	1.41	0.92-2.17

* $p < .05$

Conclusions

- Assaultive trauma has a stronger association with AUD-only onset before age 18 than later, and has a robust association with AUD+MDD onset that does not diminish over time.
- Parental alcohol problems are associated with assaultive trauma, and are also independent predictors, along with trauma, of AUD-only and AUD+MDD.
- Early separation from one or both parents is associated with onset of AUD-only before age 13, but not after.