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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.

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## Assaultive

Childhood neglect

Childhood physical abuse

Rape

Sexual Molestation

Serious physical assault

Threatened with weapon or kidnapped

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## Non-Assaultive

Life-Threatening Accident

Fire, flood, or natural disaster

Witness injury or killing



# Methods

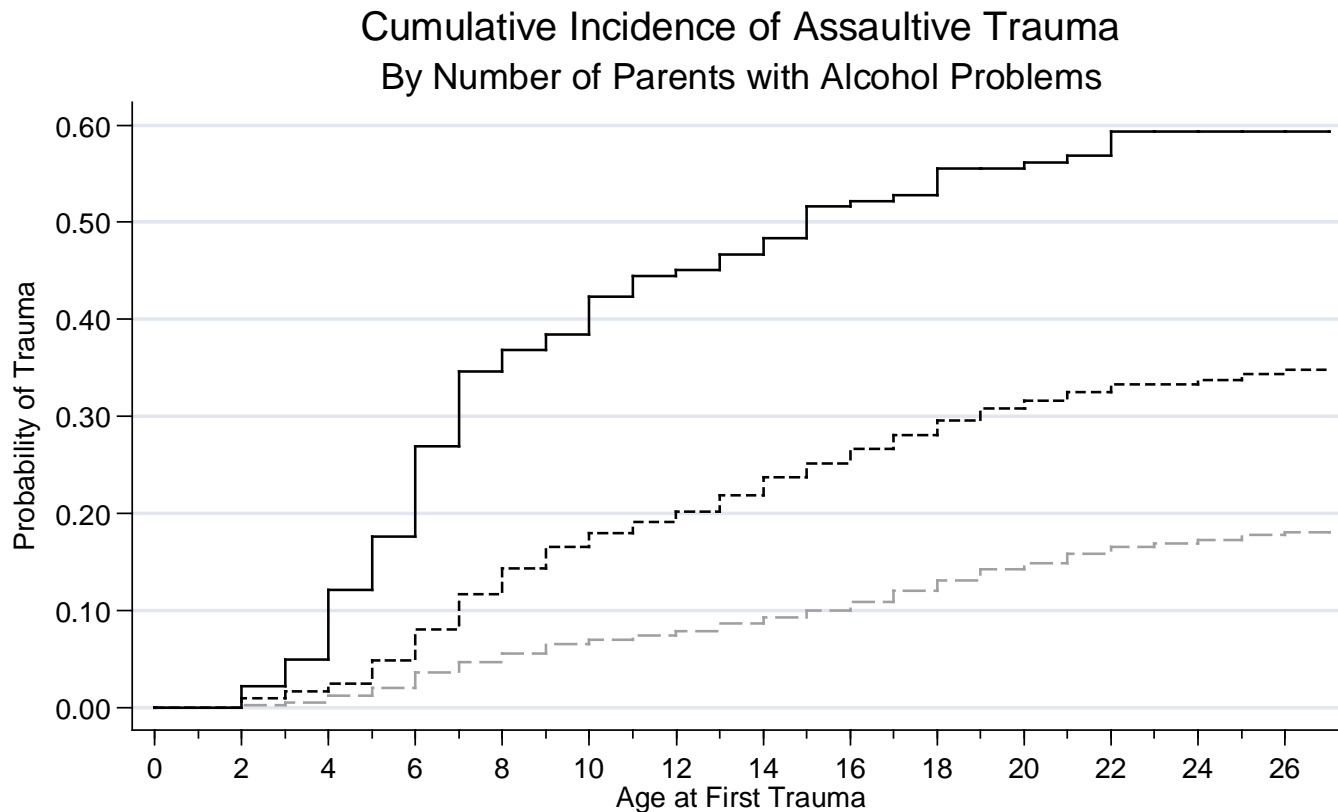
- Person-year data files were created which reflected, for each year of each woman's life to the time of interview, her cumulative experience of trauma and status on AUD and MDD
- Cox regression was used to determine differences in risk according to age at trauma and age at onset of AUD and AUD+MDD
- 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)
<b>Assaultive trauma</b>			
Age 0-17	13.0	23.5	54.4
Age 18+	2.4	5.2	9.3
<b>Nonassaultive trauma</b>			
Age 0-17	20.1	33.5	37.9
Age 18+	7.0	10.0	13.2
<b>Parental Alcohol Problems</b>			
One parent	22.6	37.8	41.2
Both parents	3.3	6.0	13.2
<b>Separation from parents</b>			
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



--- No Parent Alc.      - - - - - One Parent Alc.  
— Both Parents Alc.

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

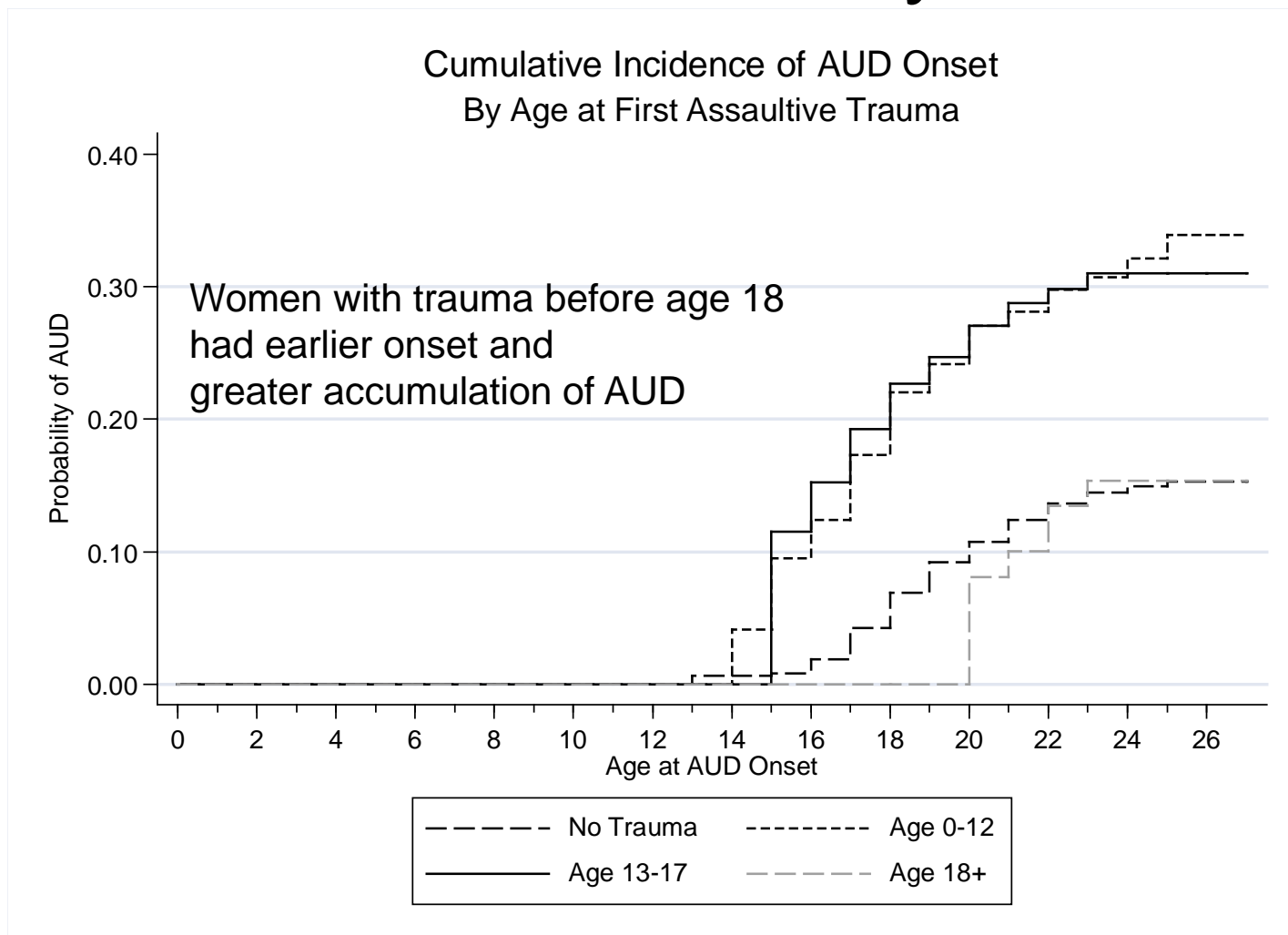
# Parental Alcohol Problems and Separation from Parents Predict Assaultive Trauma

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

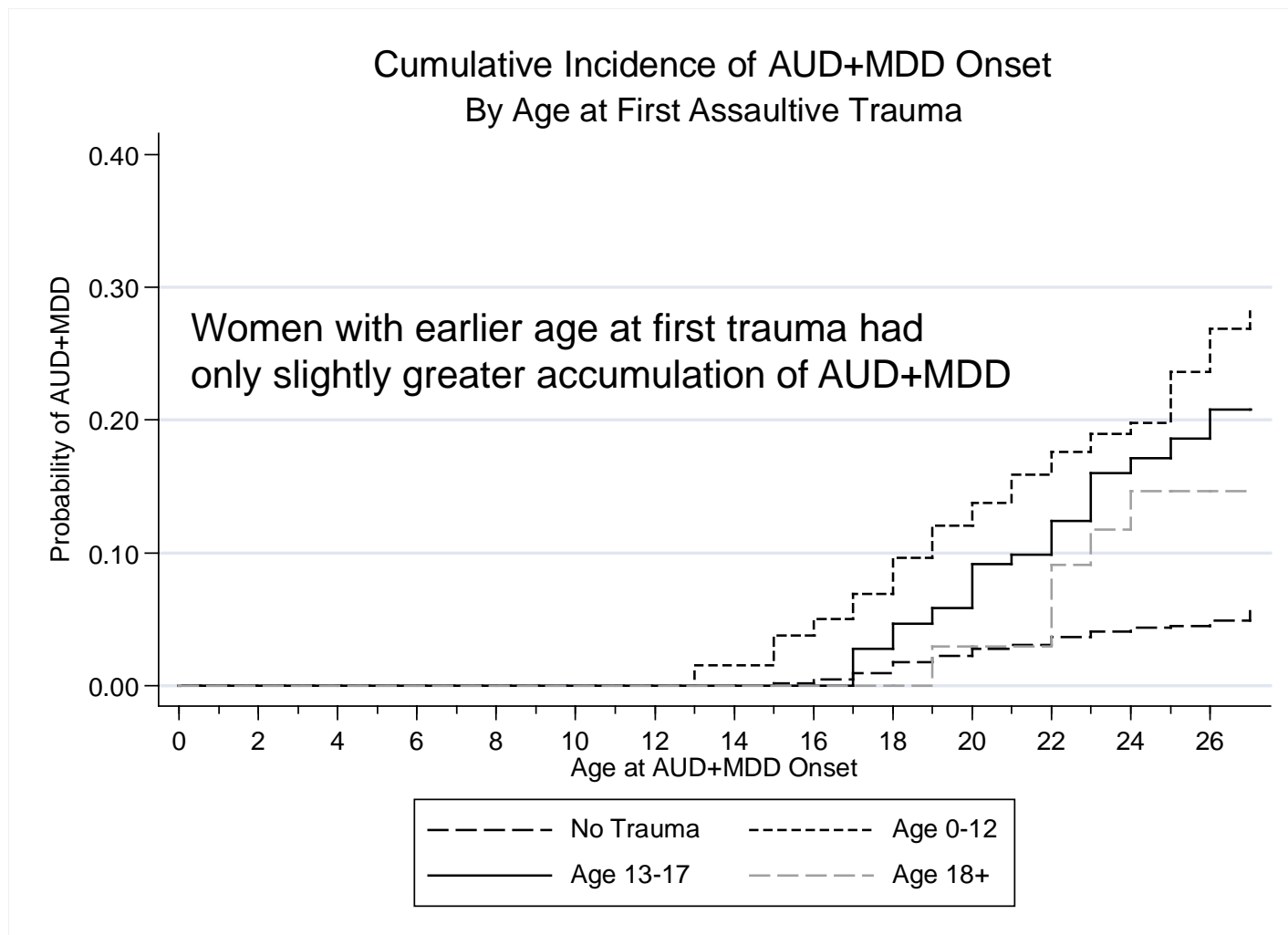
# Assaultive Trauma and Cumulative Risk for AUD-only



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



# 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.