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# Early use of alcohol, tobacco, and illicit substances: Risks from parental separation and parental alcoholism

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# ABSTRACT

We examine early use of alcohol, tobacco, marijuana and other illicit substances as a function of parental alcoholism and single parenthood during childrearing years using data on 3282 adolescent and young-adult female twins from the Missouri Adolescent Female Twin Study (MOAFTS). Results from Cox proportional hazards regression models predicting onset of substance use from dummy variables coding for parental alcoholism and marital history show a marked increase in risk of very early onset use in single-parent families. Compared to offspring of continuously married nonalcoholic parents, offspring of divorced alcoholic parents were much more likely to consume alcohol, drink to intoxication, smoke cigarettes, smoke regularly, and use marijuana and other illicit drugs by ages 12 and 14. Offspring of divorced nonalcoholic parents were also more likely to drink to intoxication and use marijuana and other illicit drugs by ages 12 and 14. No significant increase in risk was observed for offspring of continuously married alcoholic parents and with the exception of onset of regular smoking, no significant increase in risk was observed for offspring of nevermarried nonalcoholic parents.

# Early Alcohol and Other Substance Use

Use of alcohol and other substances by young as well as older adolescents is widespread.

- Approximately 41%, 25%, and 16% of 8th graders in the U.S. report use of alcohol, cigarettes, and marijuana, respectively, at some point in their life and over 20% of 8th graders report lifetime use of any illicit drug. By 12th grade, approximately 75%, 50%, 50%, and 45% of students report lifetime use of alcohol, cigarettes, marijuana, and any illicit drug<sup>1</sup>.

Given early onset substance use is one of more well-documented predictors of alcohol (and drug) use disorders<sup>2-8</sup>, identifying risks contributing to early use is essential for targeted prevention and preventive interventions.

<sup>1</sup>Johnston et al. (2006); <sup>2</sup>Anthony & Petronis (1995); <sup>3</sup>Grant (1998); <sup>4</sup>Grant & Dawson (1997); <sup>5</sup>Hawkins et al. (1997); Kandel (1985); <sup>6</sup>Kandel & Davies (1992); <sup>7</sup>Robins & Przybeck (1985); <sup>8</sup>Wagner & Anthony (2002)

# Early Use and Parental Risks

Children of alcoholics (COAs) are at especially high risk for early and problem substance use<sup>1-4</sup>.

- Compared with children of non-alcoholic parents, COAs report earlier onset of alcohol use and are at greater risk for alcohol problems later adolescence and adulthood. COAs also report earlier marijuana and other drug use.

History of heavy and problem drinking is strongly associated with divorce<sup>5-9</sup> and children of divorced parents also report greater alcohol and drug involvement compared with children from intact, married families<sup>10-12</sup>.

<sup>1</sup>Chassin et al. (2002); <sup>2</sup>Lieb et al. (2002); <sup>3</sup>Sher et al. (1991); <sup>4</sup>Schuckit & Smith (1996); <sup>5</sup>Chilcaot & Breslau (1996); <sup>6</sup>Hajema & Knibbe (1998); <sup>7</sup>Power, Rodgers, & Hope (1999); <sup>8</sup>Wang & El-Guebaly (2004); <sup>9</sup>Yamaguchi & Kandel (1985); <sup>10</sup>Doherty & Needle (1991); <sup>11</sup>Fergusson, Horwood, & Lynskey (1994); <sup>12</sup>Short (1998)

# Present Study

Parental alcoholism and single parenthood resulting from divorce or never-marriage share a number of correlated environmental risks. Whether and to what extent single parenthood works to mediate associations between parental alcoholism and early substance use or qualify observed risks to COAs is unknown.

- The present study examines onset of alcohol, tobacco, marijuana and other illicit substance use as a function of both parental alcoholism and single parenthood during childrearing years using Cox proportional hazards regression models predicting substance use onset by offspring of married, divorced, or never-married parents with and without a history of alcohol use disorder (AUD).

# Sample

## Missouri Adolescent Female Twin Study (MOAFTS)

- Missouri-born same-sex female twin pairs born between January 1975 and December 1985 to Missouri-resident parents identified through state birth records
- Cohort-sequential design with initial cohorts of 13, 15, 17 and 19 during first two years of data collection and continued recruitment of 13+ year-olds
- Baseline interviews with one- and five-year (“Wave 4”,  $N = 3282$ ) follow-up assessment

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	Wave 4
Age, $M (SD)$	21.64 (2.72)
African American	15%
High school degree or equivalent	91%
Marital status of twin respondent	
Nevermarried	78%
Married	20%
Separated or divorced	2%

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# Measures

## Parental Alcohol Use Disorder (AUD)

- Maternal history of DSM-IV Alcohol Abuse (AB) or Dependence (AD), and/or paternal AD assessed using telephone adaptation of the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA)<sup>1</sup> – see *Table 1*

## Parental Marital History

- Biological parents continuously married, never-married (and not cohabiting), or separated/divorced during childrearing years – see *Table 1*

## Offspring Substance Use Onset – see *Table 2*

- Alcohol – age at first use, age at first intoxication
- Cigarettes – age at first use, age at first regular use
- Marijuana – age at first use
- Other illicit substances (e.g., cocaine, heroin, hallucinogens) – age at first use

## Covariates

- Ethnicity (African American)
- Offspring history of conduct problems (DSM-IV Conduct Disorder)

<sup>1</sup>Bucholz et al. (1994)

Table 1. Parental AUD and single parenthood

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AUD	
Maternal AB or AD	15%
Paternal AD	19%
Maternal or paternal AUD	30%
Marital history	
Continuously married	62%
Divorced or separated	29%
Never-married	9%

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Table 2. Ever/used and age of onset

	Ever/used %	Age of Onset <i>M (SD)</i>
Alcohol	86	16.39 (2.36)
Alcohol Intoxication	73	17.34 (2.42)
Cigarettes	71	14.35 (3.03)
Regular smoking	36	16.12 (2.45)
Marijuana	43	16.65 (2.36)
Other illicit drugs	18	17.72 (2.83)

# Results

Results from Cox proportional hazards regression predicting onset of alcohol and other substance from parental AUD and single parenthood during childrearing years suggest a marked increase in risk of very early onset alcohol and other substance use in single-parent families – see *Tables 3-8*

- Compared to offspring of continuously married nonalcoholic parents, offspring of divorced alcoholic parents are much more likely to consume alcohol, drink to intoxication, smoke cigarettes, smoke regularly, and use marijuana and other illicit drugs by ages 12 and 14, as are offspring of nevermarried alcoholic parents.
- Offspring of divorced nonalcoholic parents are also more likely to consume alcohol, drink to intoxication, smoke cigarettes, smoke regularly, and use marijuana and other illicit drugs by ages 12 and 14.
- No significant increase in risk is observed for offspring of continuously married alcoholic parents; with the exception of first regular smoking, no significant increase in risk is observed for offspring of nevermarried nonalcoholic parents.

Table 3. Hazard ratios (HR) and 95% CIs for first alcohol use as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 12	] 1.86 (1.53-2.26)	] 2.71 (1.41-5.23)	] 1.25 (1.10-1.42)	5.25 (2.10-13.15)	] 0.99 (0.79-1.24)
13-14				1.28 (1.12-1.46)	
15-17	] 1.20 (1.02-1.41)	] 1.26 (0.98-1.63)			
≥ 18					

Table 4. Hazard ratios (HR) and 95% CIs for first alcohol intoxication as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 9	] 5.11 (2.77-9.44)	41.77 (2.61-667.95)	] 1.31 (1.14-1.52)	3.61 (1.88-6.93)	] 0.86 (0.63-1.17)
10-12		] 1.48 (1.09-2.02)		1.83 (1.32-2.53)	
13-14	1.36 (1.12-1.65)		1.26 (1.04-1.52)		
15-17	1.10 (.83-1.46)		0.98 (0.74-1.29)		
≥ 18					

Table 5. Hazard ratios (HR) and 95% CIs for first cigarette use as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 9	2.89 (2.33-3.60)	3.98 (2.68-5.91)	1.66 (1.30-2.11)	2.75 (1.86-4.04)	2.01 (1.30-3.10)
10-12				1.62 (1.37-1.92)	
13-14					
15-17	1.82 (1.49-2.21)	1.84 (1.29-2.62)	1.19 (.98-1.46)	1.04 (.56-1.94)	1.39 (0.99-1.96)
≥ 18					

Table 6. Hazard ratios (HR) and 95% CIs for first regular cigarette use as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 12	]4.72 (3.49-6.38)	]4.01 (2.22-7.23)	]1.49 (1.18-1.88)	3.87 (2.38-6.28)	]2.11 (1.29-3.45)
13-14				2.04 (1.60-2.59)	
15-17	]2.04 (1.59-2.60)	]2.14 (1.22-3.74)	]1.14 (0.60-2.19)		
≥ 18					

Table 7. Hazard ratios (HR) and 95% CIs for first use of marijuana as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 12		3.79 (1.62-8.83)		2.94 (1.68-5.15)	
13-14	3.12 (2.31-4.20)				1.38 (.93-2.06)
15-17	1.75 (1.34-2.28)	1.80 (1.23-2.65)	1.37 (1.11-1.64)	1.59 (1.28-1.97)	
≥ 18	1.09 (.65-1.83)	1.19 (0.54-2.64)		0.78 (0.48-1.26)	0.37 (0.14-0.97)

Table 8. Hazard ratios (HR) and 95% CIs for first use of other illicit substances as a function of parental AUD and single parenthood

Age in years	Parental AUD+			Parental AUD-	
	Divorced	Never-Married	Married	Divorced	Never-Married
≤ 12			8.26 (2.04-33.45)	15.58 (4.78-50.80)	
13-14	2.17 (1.57-3.00)	1.89 (1.03-3.46)	1.38 (0.99-1.93)	1.37 (1.00-1.87)	1.51 (0.80-2.85)
15-17					
≥ 18	1.58 (0.97-2.58)				

# Conclusion

Both parental alcoholism and parental marital history are strongly associated with onset of substance use by age 14, and particularly with onset by age 12.

- With the exception of other illicit drug use, the increased risk associated with parental alcoholism is limited to single-parent families.
- In the absence of parental alcoholism, parental divorce (and for some outcomes, parental never-marriage) is also associated with increased risk of early onset substance use.

These analyses together underscore the importance of parental single parenthood, sometimes in conjunction with parental alcoholism, as a risk factor for very early use of alcohol, tobacco, marijuana and other illicit substances.

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