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Recommended Citation
Hamburger, M.E., Leeb, R.T., & Swahn, M.H. (2008). Childhood Maltreatment and Early Alcohol Use Among High-Risk Adolescents. *Journal of Studies on Alcohol and Drugs, 69*(2), 291-295.

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Childhood Maltreatment and Early Alcohol Use Among High-Risk Adolescents*

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ABSTRACT. Objective: Child maltreatment (CM) is prevalent among U.S. youth and has been associated with subsequent maladaptive behaviors, including substance use. The current study examines the associations between early child maltreatment and (1) preteen alcohol-use initiation and (2) heavy episodic drinking among students in a large study of adolescents. **Method:** The Youth Violence Survey is a cross-sectional survey of public school students enrolled in Grades 7, 9, 11, and 12 in a school district in a high-risk community. The analysis sample was limited to students who provided complete data on all relevant variables (N = 3,559). Fifty-two percent of the analysis sample was female. Early child maltreatment was defined as witnessing domestic violence and experiencing physical and/or sexual abuse before the age of 10 years. Outcome variables include ever drinking alcohol, preteen alcohol-use initiation, and heavy episodic drinking. **Results:** Witnessing domestic violence, experiencing physical abuse, and experiencing sexual abuse were significantly associated with preteen alcohol-use initiation (adjusted odds ratio [AOR] = 1.55, 95% confidence interval [CI]: 1.26-1.91; AOR = 2.10, 95% CI: 1.69-2.63; AOR = 1.57, 95% CI: 1.16-2.14, respectively). Students who experienced one or more types of maltreatment were 1.5-3 times more likely to report preteen alcohol-use initiation. Heavy episodic drinking was associated only with childhood sexual abuse in boys (AOR = 2.62, 95% CI: 1.52-4.50). **Conclusions:** Prevention and treatment of the negative impact of early child maltreatment may delay and reduce alcohol use. (*J. Stud. Alcohol Drugs* **69:** 291-295, 2008)

ALCOHOL REMAINS THE MOST COMMONLY used drug among adolescents (Eaton et al., 2006), and alcohol use contributes to a range of adverse health behaviors and outcomes, including injuries and deaths (Blum, 1987; Centers for Disease Control and Prevention, 2004). Although the link between early alcohol use and adverse health outcomes has been documented in several reports (Ellickson et al., 2003; Hingson et al., 2006; Jefferis et al., 2005; Swahn and Bossarte, 2007), less is known about the risk factors for early alcohol-use initiation, especially among adolescents younger than age 13 years (Donovan, 2004).

Child maltreatment (CM) is prevalent among U.S. youth and has been identified as an important predictor of fair or poor health; depression; and current substance use, including cigarettes, alcohol, and other illegal substances (Hussey et al., 2006). Alcohol use often serves as a maladaptive coping strategy for victims of CM (Filipas and Ullman, 2006), and its use may differ based on its motivations (Grayson and Nolen-Hoeksema, 2005). For example, victims of CM may drink to enhance positive emotions or drink to cope with negative emotions. Moreover, although several retrospective studies of adult reports of physical and sexual abuse before age 18 years have found that victimization is associated with problematic alcohol use in adolescence and adulthood (Dube et al., 2006; Ireland et al., 2002; Moran et al., 2004; Simantov et al., 2000), few studies have used more proximal assessments to determine the link between child maltreatment and first alcohol use.

This report examines the association between early CM (i.e., child maltreatment that occurred before age 10 years) and the age at first alcoholic drink and heavy episodic drinking (HED) in a large epidemiological study of public school students from a high-risk community.

Method

Analyses are based on data from the Youth Violence Survey, a cross-sectional survey of all public school students enrolled in grades 7, 9, 11, and 12 in a school district in a high-risk community (i.e., based on indicators such as high levels of poverty, unemployment, and serious crimes). The school district was racially and ethnically diverse and located in a city with a population of less than 250,000. Active, signed, written parental permission and student assent were obtained from all students younger than 18 years of age, and students 18 years of age or older provided written consent before participating. The study received

Received: September 13, 2007. Revision: October 30, 2007.

*Data collection for this project was supported by Centers for Disease Control and Prevention contract #200-2002-F-00762 to Macro International, Inc. The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the funding agency.

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TABLE 1. Sample characteristics

Variable	Girls (n = 1,849)	Boys (n = 1,710)	Total (N = 3,559)
Race/ethnicity[a]			
Hispanic	45.3%	42.6%*	44.0%
Black, non-Hispanic	27.8%	27.3%	27.5%
White, non-Hispanic	Referent	Referent	23.6%
Other, non-Hispanic	5.0%	4.9%	4.9%
Grade in school[a]			
7th grade	33.0%	34.7%	33.9%
9th grade	27.1%	28.2%	27.6%
11th/12th grade	Referent	Referent	38.5%
Family status			
Living with both biological parents	Referent	Referent	39%
Other living arrangement	63.1%	58.7%†	61%
Type of child maltreatment[b]			
Witnessing domestic violence between parents/guardians	38.1%	26.3%‡	32.4%
Experiencing physical abuse by parents/guardians	23.4%	21.2%	22.3%
Experiencing sexual abuse by anyone	11.5%	6.1%‡	8.9%
Child maltreatment index			
None[a]	Referent	Referent	55.7%
One type	29.7%	26.3%‡	28.1%
Two types	15.1%	11.1%‡	13.2%
Three types	4.3%	1.7%‡	3.1%
Alcohol-use variables[b]			
Ever drink alcohol	58.4%	59.7%	59%
Preteen age of first alcoholic drink[c]	37.1%	44.4%*	40.6%
Heavy episodic drinking[c]	38.9%	42.5%*	40.6%

[a]Differences between boys and girls on race/ethnicity, academic grade, and the child maltreatment index were assessed using multinomial logistic regression with white, 11th/12th grade, and none as the referents, respectively; [b]numbers represent the percentage of respondents indicating yes; [c]only among drinkers (n = 2,084; n_{girls} = 1,072; n_{boys} = 1,012).
*$p < .05$; †$p < .01$; ‡$p < .001$.

institutional review board approval from the Centers for Disease Control and Prevention and ORC Macro International.

Students were ineligible to participate if they could not complete the questionnaire independently (e.g., enrolled in a special education class, required a translator, had cognitive disabilities that would inhibit understanding and responding to the survey) (n = 151) or had dropped out of school, been expelled, or were on long-term suspension (n = 202). Of the 5,098 eligible students, data were collected from 4,131 students (participation rate = 81.0%) in April 2004. Students voluntarily completed an anonymous, self-administered 174-item questionnaire during a 40-minute class period. Students received a gift card for participation. The current analyses are limited to those participants who had complete data on all variables of interest (n = 3,559). Students excluded from these analyses (n = 572) were more likely to be in the 7th grade than in the 9th, 11th, or 12th grade. No other differences between these two groups were found for demographics or other variables of interest (e.g., alcohol use, age at first alcoholic drink, HED) after corrections for multiple comparisons. See Table 1 for sample characteristics.

Two survey questions were used to compute three alcohol-related outcome variables. "How old were you when you had your first drink of alcohol, other than a few sips?" (Eaton et al., 2006) was used to define (1) ever drink alcohol (never drank/any reported age at first drink) and (2) age at first alcoholic drink (preteen, <13 years old; teen, ≥13 years old). HED was assessed using the question "During the past 12 months, on how many days did you drink five or more drinks in a row?" Responses were dichotomized (never/one or more) (National Institute on Alcohol Abuse and Alcoholism, 2004). Age at first alcoholic drink and HED were assessed only for adolescents who indicated they had consumed alcohol.

Students indicated their history of child maltreatment using a dichotomous (yes/no) response to the following three questions: "Before you were 10 years old…" (1) "…did you ever see or hear one of your parents/guardians being hit, slapped, punched, shoved, kicked, or otherwise physically hurt by their spouse or partner?"; (2) "…did you ever have injuries, such as bruises, cuts, or broken bones, as a result of being spanked, struck, or shoved by your parents or guardians or their partners?"; and (3) "…did someone ever force you to have sex or to do something sexual that you did not want to?" Each of the CM items was dichotomized (yes/no) for analyses. In addition, a child maltreatment index (CMI) was created to indicate the number of different types of maltreatment experienced (range: 0-3).

TABLE 2. Prevalence and adjusted odds ratios (AORs) for the relationship between child maltreatment experiences and alcohol use

	Ever drink alcohol[a]		Age at first alcoholic drink[b]		Heavy episodic drinking[c]	
Type of child maltreatment	%	AOR[d] (95% CI)	%	AOR[d] (95% CI)	%	AOR[d] (95% CI)
Witnessing domestic violence						
No	53.1	1.00 (referent)	37.1	1.00 (referent)	39.7	1.00 (referent)
Yes	71.5	1.87 (1.58-2.23)	46.1	1.55 (1.26-1.91)	42.1	1.19 (0.97-1.46)
Experiencing physical abuse						
No	55.0	1.00 (referent)	36.5	1.00 (referent)	39.6	1.00 (referent)
Yes	73.0	1.90 (1.56-2.30)	51.4	2.10 (1.69-2.63)	43.4	1.22 (0.98-1.51)
Experiencing sexual abuse						
No	57.3	1.00 (referent)	39.6	1.00 (referent)	39.4	1.00 (referent)
Yes	76.4	1.87 (1.39-2.52)	48.3	1.57 (1.16-2.14)	50.4	1.70 (1.26-2.30)
Child maltreatment index						
None	49.6	1.00 (referent)	34.2	1.00 (referent)	38.4	1.00 (referent)
One type	67.4	1.82 (1.52-2.18)	42.5	1.45 (1.15-1.83)	41.2	1.24 (0.99-1.56)
Two types	76.8	2.79 (2.15-3.61)	51.4	2.41 (1.82-3.20)	42.8	1.38 (1.04-1.83)[e]
Three types	77.1	2.25 (1.36-3.74)	54.8	3.16 (1.88-5.29)	53.6	1.93 (1.16-3.22)[e]

[a]Numbers represent percent of respondents indicating having consumed alcohol; referent group are those indicating they have never consumed alcohol; [b]only among drinkers (n = 2,084); numbers represent percent of respondents indicating first consuming alcohol before age 13; referent group are those indicating being a teen (≥13 years old) when they first consumed alcohol; [c]only among drinkers (n = 2,084); numbers represent percent of respondents indicating having consumed five or more drinks in a day at least once; referent group for heavy episodic drinking are those indicating they have never consumed five or more drinks in a day; [d]ORs adjusted for school grade (proxy for age), sex, race/ethnicity, family status, and alcohol use by peers; [e]these ORs are nonsignificant after applying a modified Bonferroni correction for multiple tests; all other odds ratios are significant at $p < .05$.

Analyses

Logistic regression analyses were computed to examine the associations between CM, CMI scores, and ever drink alcohol, age at first alcoholic drink, and HED. Odds ratios (ORs) and 95% confidence intervals (CIs) were adjusted for participants' grade (e.g., 7th, 9th, or 11th/12th; grade in school was used as a proxy for age); sex; race/ethnicity (Hispanic, white non-Hispanic, black non-Hispanic, other non-Hispanic); family status (living with both biological mother and father vs other living arrangement); and the extent to which students reported associating with peers who consumed alcohol. A modified Bonferroni correction (Simes, 1986) was used to adjust for multiple comparisons to maintain an overall significance level of $p = .05$.

Results

Among all participants, 44% reported any CM and 59% reported ever drinking alcohol (Table 1). Experiencing each type of CM was associated with approximately a twofold ($p < .05$) increased likelihood of ever drinking alcohol (Table 2). Similar results were obtained with the CMI: compared with respondents reporting no history of CM, those who experienced two or more types were three times more likely to report ever using alcohol.

Among ever drinkers (n = 2,084), each type of CM was associated with an increased likelihood of preteen alcohol use, and only experiencing early childhood sexual abuse was associated with reported HED. Regarding CMI scores, compared with participants who reported no history of CM, the risk for preteen alcohol use increased as CMI scores increased. CMI scores were not significantly associated with reports of HED for the full sample.

Given the association between the alcohol-use variables and sex (see Table 1), we also examined associations between CM and alcohol outcomes by sex. The only significant difference between boys and girls was observed for the association between sexual abuse and HED. Boys with a history of sexual abuse were approximately 2.5 times more likely to report HED than boys with no such history (adjusted OR [AOR] = 2.62, 95% CI: 1.52-4.50); a history of sexual abuse was not significantly associated with reported HED for girls (AOR = 1.37, 95% CI: 0.94-1.98).

Discussion

Our results highlight that CM experienced in early childhood is associated with both early alcohol use and HED. In particular, the findings underscore that all three forms of CM contribute individually and in aggregate to alcohol use and younger age at first alcoholic drink. Consistent with prior research (Dube et al., 2006), the risk for preteen alcohol use increased with each early maltreatment type experienced. CM was a less robust, but still significant, predictor of adolescent HED in boys. Specifically, our results indicate that childhood sexual abuse was significantly associated with HED among boys but not girls. Although prior research on childhood sexual abuse and alcohol use has generally focused on women (e.g., Wilsnack et al., 1997),

our results parallel other research which found that boys who experience early sexual abuse report more extreme use of alcohol (Chandy et al., 1996; Luster and Small, 1997) and may use alcohol as an avoidance mechanism to cope with the trauma (e.g., Grant et al., 2001).

Our findings extend previous research on the association between child maltreatment and alcohol use in four important areas. First, unlike previous studies, we focused on childhood maltreatment before age 10 years rather than any maltreatment experienced before age 18 years. Early childhood is a developmental period in which parental influence is at its greatest; therefore, maltreatment during an earlier period is likely to have dire consequences. Second, we included both direct and indirect forms of child maltreatment. The Centers for Disease Control and Prevention defines neglect as including failure to protect a child from violent environments such as witnessing domestic violence or other violence in the home, neighborhood, or school (Leeb et al., in press). Research in the CM field has found evidence that indirect forms of CM are related to negative outcomes at the same, if not greater rates, than direct forms of CM (Finkelhor and Kendall-Tackett, 1997). In our study, we found that adolescents who reported witnessing domestic violence between caregivers were as likely to report ever drinking alcohol and early age at alcohol initiation as those adolescents reporting more direct forms of CM. Third, we assessed alcohol use at a more proximal time relative to maltreatment, thus reducing potential recall bias, which may be an important factor in studies determining the link between child maltreatment and alcohol use in adult populations. Finally, we included a measure of first alcohol use in our assessment of alcohol-related behaviors. Research has shown that precocious alcohol use has been associated with later alcohol abuse and dependence (Ellickson et al., 2003; Hingson et al., 2003).

Our results are subject to at least four limitations. First, all participants were students in a high-risk urban school district; thus the results may not reflect the experiences of youth who have dropped out of school or who may attend school in different settings or regions. Second, our measures of CM and alcohol use were self-reported and may be subject to reporting bias. Third, the study design is cross-sectional, in which participants were asked about CM occurring before age 10 years. Therefore, although CM preceded alcohol use, we cannot infer causation. Finally, although the analyses included some potential confounding variables, other variables that may be part of the complex mechanisms linking CM and alcohol use were not included. These factors can include household dysfunction (e.g., Felitti et al., 1998), availability of alcohol in the home and alcohol-specific parenting practices (e.g., Van Zundert et al., 2006), conduct disorder (e.g., Moss and Lynch, 2001), and childhood antisocial behavior (e.g., Clark et al., 2002). Future research and evaluation of CM prevention efforts and their potential impact on alcohol use are warranted. Meanwhile, our findings support focused efforts to prevent, and thereby reduce, the many negative consequences of child maltreatment.

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