

Negative Childhood Experiences Could Precipitate Earlier Drinking

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Research Summary

A study has found that children who deal with hardships such as abuse, divorce or substance abuse in the home may be more likely to begin using alcohol at a young age, [Reuters Health](#) reported Aug. 11.

Researchers for the study of 3,600 Americans ages 18 to 39 were able to link earlier onset of drinking to five specific childhood experiences: physical abuse, sexual abuse, living with a family member with mental illness, substance abuse in the home, and parents' divorce or separation.

Adults who reported having any of these experiences were more likely to have used alcohol before the age of 15 and also were more likely to have used alcohol in order to cope with their problems. The researchers said their findings are important in identifying particularly problematic issues in childhood and in pointing to early activities that can shape drinking patterns well into adulthood.

Researchers led by Emily Rothman, Sc.D., of the Boston University School of Public Health, found in their analysis of adults who were current or former drinkers that childhood abuse had the strongest association with early drinking. The risk of starting drinking before age 15 was two to three times higher for children who had experienced abuse.

Having a family member with a mental illness or substance abuse problem was the factor causing the next highest level of risk for early drinking.

Rothman and colleagues emphasized that these factors do not increase the risk of early drinking as a coping mechanism for all young people, adding that a lack of adult supervision might be linked with children's early drinking experiences. This would be the case particularly for a parent with mental illness who might not be capable of monitoring a child's activities, they stated.

Study results were published in the August issue of [Pediatrics](#).

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ABSTRACT

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OBJECTIVE. Our goal was to determine whether adverse childhood experiences predicted the age at which drinking was initiated and drinking motives in a representative sample of current or former drinkers in the United States.

METHODS. In 2006, a probability sample of 3592 US current or former drinkers aged 18 to 39 were surveyed. Multinomial logistic regression examined whether each of 10 adverse childhood experiences was associated with earlier ages of drinking onset, controlling for demographics, parental alcohol use, parental attitudes toward drinking, and peers' drinking in adolescence. We also examined whether there was a graded relationship between the number of adverse childhood experiences and age of drinking onset and whether adverse childhood experiences were related to self-reported motives for drinking during the first year that respondents drank.

RESULTS. Sixty-six percent of respondents reported ≥ 1 adverse childhood experiences, and 19% reported experiencing ≥ 4 . The most commonly reported adverse childhood experiences were parental separation/divorce (41.3%), living with a household member who was a problem drinker (28.7%), mental illness of a household member (24.8%), and sexual abuse (19.1%). Of the 10 specific adverse childhood experiences assessed, 5 were significantly associated with initiating drinking at ≤ 14 years of age (compared with at ≥ 21 years of age) after adjustment for confounders, including physical abuse, sexual abuse, having a mentally ill household member, substance abuse in the home, and parental discord or divorce. Compared with those without adverse childhood experiences, respondents with adverse childhood experiences were substantially more likely to report that they drank to cope during the first year that they used alcohol.

CONCLUSIONS. Results suggest that children with particular adverse childhood experiences may initiate drinking earlier than their peers and that they may be more likely to drink to cope with problems (rather than for pleasure or to be social).

Key Words: age of drinking onset • drinking initiation • adverse childhood experiences

Abbreviations: ACE—adverse childhood experience • NESARC—National Epidemiologic Survey on Alcohol and Related Conditions • CI—confidence interval • OR—odds ratio • aOR—adjusted odds ratio

By the eighth grade, >40% of US youth have used alcohol.¹ Earlier age of drinking onset is associated with harmful drinking and alcohol dependence in later life,²⁻⁶ negative alcohol-related consequences,⁷⁻¹² and later adolescent problem behaviors including poor academic performance and delinquency⁴; therefore, there have been several calls for initiatives to delay the age of drinking onset.¹³⁻¹⁶

It has also been argued that secondary prevention programs should include attention to adolescents' drinking motives.¹⁷ The motivational model of alcohol use proposes that whether individuals choose to drink is a function of genetics, personality characteristics, sociocultural and situational factors, expectancies about the effect of alcohol intake, and the desire to experience the effects of alcohol (ie, drinking motives).^{17,18} Among these,

drinking motives have been found to be the most proximate in the alcohol-related decision-making of adolescents.^{17,19} Notably, certain drinking motives, such as drinking to reduce social anxiety and drinking to cope with problems, have been found to predict problem drinking.^{20,21}

Given the recent calls to delay drinking initiation and address adolescents' drinking motives, it is important to develop a more complete understanding of the "root causes" of both. Although previous research has identified a number of factors that are suspected to influence the age of drinking onset,^{1-3,5,22-24} some of these factors are not modifiable (eg, gender, race, hereditary factors), and most have been correlated with drinking onset only in cross-sectional studies; therefore, research that identifies modifiable factors and provides evidence of a causal relationship is needed.

The Adverse Childhood Experiences Study, a retrospective cohort study of adult health maintenance organization members in California, identified a set of 10 childhood abuse and household dysfunction exposures that seem to be causally associated with many of the leading causes of morbidity and mortality in the United States.²⁵ One previous analysis of these data found a graded relationship between the total number of adverse childhood experiences (ACEs) that individuals experienced and earlier ages of drinking initiation²⁵; however, a limitation of the previous study is that the mean age was 55 and 57 years for male and female survey respondents, respectively, and it has been established that retrospective reporting of drinking initiation is prone to error as time since the event increases.²⁶ In addition, the analysis did not control for family feelings about alcohol or peer drinking, which have been found to be predictors of the age of drinking onset and are potential confounders.²⁷ A more recent study analyzed cross-sectional data from 3559 7th- through 12th-graders in a high-risk urban community and found that witnessing domestic violence and experiencing physical and/or sexual abuse before the age of 10 was associated with initiating alcohol use before 13 years of age.²⁸

The first goal of this study was to investigate whether ACEs were associated with an earlier age of drinking onset, controlling for potential confounders, by using a sample that is representative of current or former drinkers in the United States. A second goal was to explore whether individuals who had ACEs and drank were more likely to drink to cope with problems or stress, rather than for social or pleasure enhancement reasons, during the first year that they drank.



METHODS

In 2006, we conducted a survey of current or former drinkers aged 18 to 39 ("the drinking-onset survey"). The research protocol was approved by the Boston Medical Center institutional review board. Our study comprised 2 sample groups. The first was a random sample of members of a prerecruited Internet panel, representative of the general population of the United States, which is maintained by the consumer information company Knowledge Networks. The second was a sample of individuals who refused to join or dropped out of the panel but were willing to participate in the drinking-onset survey. There was a 37% weighted response rate across the 2 samples combined.

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To be eligible for the drinking-onset survey, panel members needed to have been recruited within the past 2 years, been between the ages of 18 and 39, and reported that they had consumed ≥ 12 drinks during the past year or in any previous 12-month period. To identify eligible participants for the drinking-onset study, Knowledge Networks sent a recruitment e-mail to 6200 panel members of the appropriate age. The 5505 (89%) who responded were screened for eligibility; 4012 (73% of responders) were eligible. Of these, 100% completed surveys; 603 were randomly selected for a substudy on survey modality effects (comparing telephone with online survey responses) and completed the survey via telephone, and the other 3409 completed the survey online. For this analysis, we restricted our sample only to individuals who completed the Internet survey ($n = 3409$).

In addition, the survey was administered by telephone to a random sample of individuals who had refused to join the Knowledge Networks panel or had dropped out of it ($n = 612$). Although the demographic profiles of the Internet panel and nonresponse samples differed somewhat, we found few differences on the alcohol use variables after controlling for age, gender, and race²⁹; therefore, the nonresponse sample was included to improve generalizability.

Measures

Survey questions on alcohol consumption and age of drinking onset were based on questions from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) instrument. Age of drinking onset was assessed through a single question: "About how old were you when you first started drinking, not counting small tastes or sips?" Responses were categorized as ≤ 14 years, 15 to 17 years, 18 to 20 years, or ≥ 21 to be consistent with the previous study that assessed ACEs and the initiation of alcohol use.²⁵

Adverse Childhood Experiences included 4 categories of childhood abuse—emotional neglect (5 questions), physical neglect (6 questions), psychological abuse (2 questions), physical abuse (2 questions), and contact sexual abuse (4 questions)—and 5 categories of household dysfunction—exposure to substance abuse (2 questions), mental illness (2 questions), witnessing violence against a mother or stepmother (4 questions), criminal behavior (1 question) of a household member, and parental separation or divorce (1 question).³⁰ Respondents who indicated that they had experienced any of the adverse exposures ≥ 1 time were classified as positive for that exposure. We also assigned a total

ACEs score ranging from 0 to 10 to each participant by summing the total number of ACEs that each individual had experienced.

Four drinking motives were measured via the 20-item drinking motives revised questionnaire.³¹ Respondents were asked to think back to the first year when they began drinking and to indicate how often they drank for each reason. Sample reasons include "to forget your worries" and "because it gave you a pleasant feeling." Each motive had 5 response options: "1, almost never or never;" "2, some of the time;" "3, half of the time;" "4, most of the time;" and "5, almost always or always." Responses were summed, averaged, and grouped by subscale. Dummy variables were created to indicate whether respondents' motive subscale mean score was <4 . Demographic and situational variables included gender, race, education, age at survey in years, family feelings about alcohol, and number of friends who drank occasionally during the first year of high school.

Statistical Analyses

All analyses were conducted using SUDAAN, which is a software program designed to account for complex survey sampling and designs. We used multinomial logistic regression models to calculate the crude odds ratios (ORs) of the covariates listed with each of the 10 categories of ACEs and age of drinking onset, using a forward model-building strategy based on a 10% change in the estimate of effect for the main exposure.³² When adding a covariate to the model changed the estimate of effect by $>10\%$, we considered it to be a confounder. We used logistic regression models to calculate ORs and 95% confidence intervals (CIs) for the association between each of the 10 categories of ACEs and age of drinking onset adjusted for age, gender, race, educational attainment, family feelings about alcohol, and the number of the respondents' friends who drank during the first year of high school. In these analyses, we compared the odds for initiating drinking within a particular age range (≤ 14 years, 15–17 years, or 18–20 years) with initiating drinking at age ≥ 21 years. Finally, we assessed respondents' drinking motives by calculating the prevalence and adjusted odds for the relationship between each of the 10 categories of ACEs and each of the 4 motives. In this final analysis, we adjusted for age, gender, race, educational attainment, family feelings about alcohol, and the number of respondents' friends who drank during the first year of high school.

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RESULTS

Characteristics of the Study Population

Respondents who were missing data on age of drinking onset ($n = 24$) or on at least 1 of the ACEs were excluded ($n = 411$), yielding a final sample of 3592 individuals. The mean age of respondents was 31.0 years (SD 5.9) among men and 30.1 years (SD 5.9) among women. Approximately 10.5% of respondents initiated drinking before age 15, 34.3% initiated drinking between 15 and 17 years of age, 32.4% initiated drinking between 18 and 20 years of age, and 22.8% initiated drinking at age ≥ 21 years (Table 1).

View this table: **TABLE 1** Distribution of Sample Characteristics
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Prevalence of ACEs and Association Between ACEs and Age at Initiation of Alcohol Use

ACEs were prevalent among this sample; 66% of respondents reported ≥ 1 ACE, and 19% reported ≥ 4 . The most commonly reported ACEs were parental separation or divorce (41.3%), living with a household member who was a problem drinker or illicit substance user (28.7%), and mental illness of a household member (24.8%).

Of the 10 specific ACEs assessed, 5 were associated with initiating drinking before age 15 (as compared with at ≥ 21 years) adjusting for age, gender, race, educational attainment, family feelings about alcohol, and number of friends who drank during the first year of high school (Table 2). These 5 ACEs included physical abuse (adjusted OR [aOR]: 2.0 [95% CI: 1.2–3.2]), sexual abuse (aOR: 3.2 [95% CI: 2.1–4.9]), parental discord or divorce (aOR: 1.7 [95% CI: 1.2–2.5]), having a mentally ill household member (aOR: 2.0 [95% CI: 1.3–3.0]), and substance abuse in the home (aOR: 2.0 [95% CI: 1.4–3.1]). In addition, 2 ACEs were borderline associated with initiating drinking before age 15: emotional abuse (aOR: 1.6 [95% CI: 1.0–2.6]) and emotional neglect (aOR: 2.3 [95% CI: 1.0–5.4]). Sexual abuse (aOR: 1.7 [95% CI: 1.2–2.4]) and substance abuse in the home (aOR: 1.6 [95% CI: 1.2–2.2]) were also associated with initiating drinking at ages 15 to 17 years, whereas parental discord/divorce (aOR: 1.3 [95% CI: 1.0–1.8]) and having a mentally ill household member (aOR: 1.4 [95% CI: 1.0–1.8]) were borderline associated with initiating at ages 15 to 17 years.

View this table: **TABLE 2** Prevalence and aORs for the Relationship Between ACEs and the Age of Initiation of Alcohol Use ($N = 3592$)
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We found that there was a graded relationship between ACEs and initiating drinking at the earliest, middle, and latest phases of adolescence (Table 2). We also found that the number of ACEs that an individual experienced predicted earlier age of drinking initiation (Table 3). Adjusting for potential confounders, those who experienced ≥ 4 ACEs had 3.6 (2.0–6.4) times the odds for initiating drinking at age ≤ 14 years instead of at the legal age and 1.8 (1.2–2.8) times the odds for initiating drinking at ages 15 to 17, compared with those who experienced no ACEs (Table 3). Experiencing 1 or 2 ACEs did not seem to affect the age of drinking initiation substantially, but experiencing ≥ 3 did; those who experienced 3 ACEs had 2.1 (1.0–4.2) times the odds for initiating drinking before age 15 instead of at age 21.

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TABLE 3 Prevalence (%) and aORs for the Relationship Between Total Number of ACEs (Score) and Age at Initiation of Alcohol Use

The majority of people in the sample reported that during the first year that they drank alcohol, they drank to be social (32.1%) or for pleasure enhancement (24.7%). Relatively few (5.2%) reported that they drank to cope with problems or stress or to conform (4.4%). In contrast, respondents who reported that they had ACEs were substantially more likely to report that they drank to cope. For example, those who reported experiencing emotional abuse had a 2.4-fold (1.4–3.9) increased odds of drinking to cope as compared with their counterparts who had not (Table 4). Similarly, those who were physically neglected as children had a 3.1-fold (1.7–5.7) increased odds and those who were physically abused had a 2.8-fold (1.5–4.9) increased odds for drinking to cope (Table 4).

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TABLE 4 Prevalence (%) and aORs for the Relationship Between ACEs and Self-Reported Drinking Motives During the First Year When the Participant Began Drinking^{a,b}

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► DISCUSSION

Using retrospective data from a nationally representative sample of adults who were former or current drinkers, this article describes the association between 10 ACEs and the age of drinking initiation. Strengths of this study are the national probability sample, which improves the generalizability of results; the relative youth of our sample; and ability to control for potential confounders that were not included in other studies. We found a positive association between 5 ACEs and initiation of drinking before age 15. Consistent with a previous study,²⁵ we found a graded relationship between the number of ACEs experienced and the age at drinking onset. We also found that individuals who had experienced ACEs were more likely to report that they drank "to cope" rather than for social or pleasure enhancement reasons during their first year of drinking.

How might ACEs lead to earlier drinking onset? As Dube et al²⁵ proposed, children's neurodevelopment may be affected by exposure to the various forms of trauma; stress increases cortisol and norepinephrine levels, which may impede children's ability to regulate behavior, which in turn may lead to the use of alcohol and/or drugs for coping reasons. Our finding that ACEs are associated with an increased likelihood that individuals drank to cope with problems or stress during their first year of drinking provides support for this theory.

We also propose an additional or alternative explanation for the observed relationship between ACEs and early drinking onset. Home environments where ACEs occur may also be more often characterized by low parental involvement, including less limit-setting and less presence at home. Because children from homes with low parental involvement have increased access to alcohol and increased opportunity (ie, unmonitored time) in

which to drink, the observed relationship between ACEs and early drinking onset may also be related to opportunity, not only to the effect of trauma.^{33,34} This is an important possibility, because it means that parents and clinicians should not assume that simple exposure to ≥ 1 ACE elevates a child's risk for early-onset drinking and its sequelae. Rather, even in cases in which children have ≥ 1 ACE, it may be that engaged parenting is sufficient to offset any elevated risk.

Our findings indicate that children with particular ACEs may drink for different reasons than children without these experiences during the first year that they consume alcohol. The difference in initial and perhaps ongoing drinking motives for ACE-exposed and -unexposed children may contribute to the relationship between ACEs and future risky drinking and alcohol dependence.^{25,35} Different prevention strategies may be needed for children with ACEs than those without; these children may not be discouraged by efforts that seek to reduce social drinking or "partying" and may instead require specifically tailored prevention messages about healthier ways of coping with problems, stress, and fitting in.

Several limitations must be acknowledged. First, the survey response rate (37%) was low; however, as has been argued elsewhere, low participation does not necessarily indicate that a high level of response bias is present; rather, it suggests that response bias may be a concern.³⁶ To investigate the representativeness of the present sample, we compared respondents with those of the 2001–2002 NESARC, which had an 81% response rate.²⁹ The comparison found that our respondents were similar to the national population of 18- to 39-year-old ever-drinkers on gender, education, and race/ethnicity and that estimates of the associations between alcohol dependence and age of drinking onset, risky drinking, and family history of alcohol problems did not differ significantly between our sample and the NESARC sample.²⁹

Second, it is possible that respondents who experienced ACEs were more likely than other respondents to report an earlier age of first drink as a result of recall bias. This possibility notwithstanding, one advantage of this study is that the mean average age of respondents was 25 years younger than those in the original ACEs study. Available evidence suggests that the older that people become, the more likely they are to report important events as occurring more recently^{37,38}; therefore, using a younger sample likely reduced the threat of retrospective recall inaccuracies.

Third, the original set of ACE questions solicit information about events that occurred in the respondents' first 18 years of life. We modified the ACE questions such that they referred to either the first 15 or 16 years of life, which should have resulted in lower estimates of ACEs but did not. A likely reason for this is the younger age of our sample, which reduced underreporting of ACEs, which in turn offset the narrower time frame of our ACE questions.

Fourth, the temporal order of ACEs and drinking onset could not be established for all respondents. ACEs included any events that occurred up to either 15 or 16 years of age, depending on the ACE category. There could be individuals who initiated drinking at age 14 and subsequently experienced an ACE at age 15. Because of this possibility, causality cannot be inferred from our results.

Finally, our analysis includes multiple comparisons, which increase the potential for false-positive results. This is a complex and controversial issue, and we did not attempt to make a formal correction; however, this was a descriptive study, and we present both positive and negative results so that readers can use their own judgment. Furthermore, a consistent pattern was observed in terms of the associations between ACEs and the age of drinking initiation, which suggests that our positive results did not occur by chance.

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► CONCLUSIONS

Results of this study are consistent with a causal relationship between ACEs and early drinking initiation. In addition, they suggest that individuals who experience particular ACEs may be motivated to drink for different reasons than individuals without these specific experiences, which may lead to a different pattern of alcohol consumption across their life span, including earlier drinking initiation, increased risk for risky drinking in adolescence, and alcohol dependence in adulthood.

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► FOOTNOTES

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What's Known on This Subject

The results of two prior studies suggest that adverse childhood experiences are related to drinking onset, but were subject to several limitations.

What This Study Adds

To our knowledge, this study is the first to find that particular ACEs predict drinking initiation and drinking to cope with problems by using a national probability sample of current or former drinkers.

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