

# Adolescent Frequent Heavy Drinking From 1991–2015

Justine Wittenauer Welsh, MD,<sup>a</sup> John Rogers Knight, MD,<sup>b</sup> Scott Evan Hadland, MD, MPH, MS<sup>c,d</sup>

Alcohol use during adolescence carries an increased risk of negative psychosocial and health outcomes. Adolescents who drink heavily have a higher likelihood of unprotected sex, physical altercations, poor school or work performance, and problems with parents.<sup>1</sup> Earlier age of initiation is also a strong predictor of heavy alcohol consumption by adulthood and potential progression to an alcohol use disorder.<sup>2</sup>

Fortunately, since its peak in the late 1990s, the prevalence of binge drinking (defined as  $\geq 5$  drinks in the past 2 weeks) has declined to historic lows of 3.4%, 9.7%, and 15.5% among eighth, 10th, and 12th graders, respectively, according to Monitoring the Future (MTF) data.<sup>3</sup> Despite this critical public health occurrence, the underlying reasons for this change are unclear. In this month's issue of *Pediatrics*, Jang et al<sup>4</sup> explore this decline, using 1991–2015 MTF data to delineate age, period, and cohort effects on frequent heavy drinking. Frequent heavy drinking was defined as  $\geq 2$  occasions of  $\geq 5$  drinks in a row during the past 2 weeks.

“Age effects” describe the familiar phenomenon whereby adolescents become more likely to drink heavily as they get older. “Period effects” are secular trends in drinking that affect youth of all ages living during a particular time that may be caused by policies or norms during that time. Finally, “cohort effects” describe changes in drinking patterns intrinsic to youth born around the same time. As an example, most clinicians are familiar with the idea

that “millennials” are a group of youth unique from other generations before them and may have different substance use behaviors.

Consistent with national trends, Jang et al<sup>4</sup> found an overall decrease in heavy frequent drinking patterns since the 1990s, with the greatest decline among adolescents born between 1985 and 1990. The overall decline was driven by both period and cohort effects. Critically, they noted a slower decline among blacks than whites since 2007, indicating an important disparity in the overall improving national statistics. Furthermore, the authors observed that male and female prevalence rates of binge drinking are converging. That is, although male adolescents have had historically higher heavy drinking rates than female adolescents, the rate decline is greater for male than for female adolescents, such that they are approaching female adolescents' lower rate. However, the authors also observed that the rates of heavy drinking are diverging according to socioeconomic status (SES). In other words, youth from low-SES backgrounds have had a slower decline in heavy drinking rates relative to youth from high-SES backgrounds.

The authors' work suggests that the decline in frequent heavy drinking is not uniform, with female adolescents, black youth, and youth from low-SES backgrounds experiencing a less steep decline. Because of a known telescoping effect, women may be more likely to experience an accelerated progression from onset of first use to an alcohol use disorder,

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<sup>a</sup>Emory Adolescent Substance Abuse Treatment Services, Emory University School of Medicine, Atlanta, Georgia; <sup>b</sup>Center for Adolescent Substance Abuse Research, Division of Developmental Medicine, Boston Children's Hospital and Department of Pediatrics, Harvard Medical School, Boston, Massachusetts; <sup>c</sup>Division of General Pediatrics, Department of Pediatrics, Boston University School of Medicine, Boston, Massachusetts; and <sup>d</sup>Department of Pediatrics, Boston Medical Center, Boston, Massachusetts

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Address correspondence to Justine Wittenauer Welsh, MD, Emory Adolescent Substance Abuse Treatment Services, Emory University School of Medicine, 12 Executive Park Dr NE, Atlanta, GA 30329. E-mail: justine.welsh@emory.edu

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with potentially more psychological, medical, behavioral, and social problems than men.<sup>5</sup> Although women have historically had a lower prevalence of substance use disorders, the public health sector has been observing this convergence with great concern.<sup>6</sup> The results of this study were consistent with previous literature citing lower rates of alcohol use in black adolescents<sup>7</sup> but differentiated from past research on SES<sup>8</sup> highlighting that lower-SES adolescents have had a slower decline in the rate of frequent heavy drinking when compared with those of higher SES.

A primary strength of the study is the use of large-scale, nationally representative data. Nonetheless, it is important to note (as the authors do) that MTF data do not include students absent from school and thus cannot account for those who miss the school-based data collection process because of poor attendance amid ongoing substance use.<sup>9</sup> Additionally, the same drinking cutoff of  $\geq 5$  drinks was applied to boys and girls. This cutoff may actually indicate more adverse outcomes in the population of girls screening positive in the study, and miss those consuming  $\geq 4$  drinks who still meet criteria for binge drinking as defined by the National Institute on Alcohol Abuse and Alcoholism.<sup>10</sup> Additional studies are needed to understand whether the slower declines in binge drinking observed among female and black adolescents are simply a leveling-off phenomenon as binge drinking rates approach historically low levels.

Pediatric primary care providers have an opportunity to screen all adolescents for alcohol use as part of routine annual care and to provide brief prevention and early intervention strategies.<sup>11</sup> A computer-facilitated approach to screening and brief advice has

been shown efficacious for reducing alcohol use among a New England sample of 12- to 18-year-olds arriving for routine care,<sup>12</sup> which is freely available for download for iPad from the Apple App Store (Juno Health).

Amid the public health success of declining binge drinking prevalence among US adolescents, this study by Jang et al<sup>4</sup> helps clinicians, public health researchers, and policymakers understand that period and birth cohort effects are important contributors. Given the complexities underlying national trends in drinking, this study should prompt researchers to explore the meaning behind gender, race, and SES differences across historical time. Despite the reassuring decline in frequent heavy drinking, it is critical that ongoing efforts address differences in declining rates to avoid exacerbating disparities.

#### ABBREVIATIONS

MTF: Monitoring the Future  
SES: socioeconomic status

#### REFERENCES

1. Danielsson A-K, Wennberg P, Hibell B, Romelsjö A. Alcohol use, heavy episodic drinking and subsequent problems among adolescents in 23 European countries: does the prevention paradox apply? *Addiction*. 2012;107(1):71–80
2. Buchmann AF, Schmid B, Blomeyer D, et al. Impact of age at first drink on vulnerability to alcohol-related problems: testing the marker hypothesis in a prospective study of young adults. *J Psychiatr Res*. 2009;43(15):1205–1212
3. Johnston LD, O'Malley PM, Miech RA, Bachman JG, Schulenberg JE. *Monitoring the Future National Survey Results on Drug Use, 1975–2016: Overview, Key Findings on Adolescent*

*Drug Use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan; 2017

4. Jang JB, Patrick M, Keyes K, Hamilton A, Schulenberg J. Frequent binge drinking among US adolescents, 1991–2015. *Pediatrics*. 2017;139(6):20164023
5. Greenfield SF, Back SE, Lawson K, Brady KT. Substance abuse in women. *Psychiatr Clin North Am*. 2010;33(2):339–355
6. Grucza RA, Norberg K, Bucholz KK, Bierut LJ. Correspondence between secular changes in alcohol dependence and age of drinking onset among women in the United States. *Alcohol Clin Exp Res*. 2008;32(8):1493–1501
7. Wagner EF, Lloyd DA, Gil AG. Racial/ethnic and gender differences in the incidence and onset age of DSM-IV alcohol use disorder symptoms among adolescents. *J Stud Alcohol*. 2002;63(5):609–619
8. Patrick ME, Wightman P, Schoeni RF, Schulenberg JE. Socioeconomic status and substance use among young adults: a comparison across constructs and drugs. *J Stud Alcohol Drugs*. 2012;73(5):772–782
9. Engberg J, Morral AR. Reducing substance use improves adolescents' school attendance. *Addiction*. 2006;101(12):1741–1751
10. National Institute on Alcohol Abuse and Alcoholism (NIAAA). NIAAA Council approves definition of binge drinking. NIAAA Newsletter, No. 3, Winter 2004. Available at: [http://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter\\_Number3.pdf](http://pubs.niaaa.nih.gov/publications/Newsletter/winter2004/Newsletter_Number3.pdf). Accessed February 7, 2017
11. National Institute on Alcohol Abuse and Alcoholism. *Alcohol Screening and Brief Intervention for Youth: A Practitioner's Guide*. Washington, DC: National Institutes of Health, Department of Health and Human Services; 2011
12. Harris SK, Csémy L, Sherritt L, et al. Computer-facilitated substance use screening and brief advice for teens in primary care: an international trial. *Pediatrics*. 2012;129(6):1072–1082

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