

Op-Ed/Editorials - Paradigms and Paradoxes that Inform Prevention of Alcohol Misuse by College and Other Youth

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Elissa Weitzman

Harvard School of Public Health

Editorial Board Member, The BASIS

Two recent scientific discussions raise important questions about substance abuse among youth in this country and how we prevent it. The first discussion reflects work on patterns of brain development and the implications of these findings for how we think about health risk behaviors including substance use. NIH scientists using nuclear magnetic resonance imaging have documented that development of the frontal lobes - the part of the brain thought to govern risk taking behavior - occurs until at least 25 years of age. This is an age well beyond what many consider 'adolescence' with all that term connotes: greater propensity to take risks and seek novel and stimulating experiences, a sense of personal invulnerability, and a lack of fully developed consequential thinking. Scientific findings call into question the ability of young people to appropriately judge risk and self-regulate to minimize harm, vulnerabilities that may be intensified in the presence of peers. Not only may the immature status of the developing brain make young people vulnerable to alcohol use and misuse - but additionally, alcohol may differentially affect the adolescent brain, setting up the potential for spiraling risk and harm. Thus new paradigms of risk are emerging that bring together biologic and sociologic insights.

Our understanding of associations between developing neurological structures and risk taking is only just beginning, but this work is sparking debate about the importance for young people's behavior of biologic structures and the implications for policy and prevention of observed associations. In the context of a

quickly developing science, this much seems to be the case: brain structure and development are important considerations with respect to health risk behavior; and, adolescence lasts longer than many people thought - roughly from 13-25 years of age. From a policy perspective this age span is notable because it encompasses ages when society permits young people to make decisions with far reaching implications for their health, including decisions to drive (at 16), purchase and use tobacco and alcohol (18 and 21). This age span is also when young people may be most likely to live in peer dense settings - as they do in college. It is the time when many young people experience disruption or loss of familiar adult supports and supervisory controls that serve to protect or buffer them including parents, family primary care providers, teachers and neighbors. Perhaps not surprisingly, this period of life may be one in which people are most heavily targeted by industries seeking to develop markets, such as the tobacco, alcohol and food industries.

Findings that young people may be vulnerable to health risk behaviors as a result of their incomplete neurological development give us pause about the types of influences and opportunities that surround them. Are we overly optimistic about young people's abilities to regulate their own choices and behaviors in the context of powerful influences to drink, smoke and eat poorly? How do we balance young people's needs and desire for autonomy with societal obligation to protect them? Colleges are one of the institutions most directly confronted with the need to resolve this issue.

The second scientific discussion reflects questions about the magnitude of harm generated by various levels of alcohol consumption and drinking style - and the implication of these patterns for setting prevention priorities and strategies. Epidemiologists have been exploring whether harms from drinking are most likely to reflect patterns of intensive heavy drinking and intoxication - patterns which call for secondary and tertiary prevention approaches (i.e., screening and treatment); or, whether harms disproportionately reflect lower levels of consumption typical of large segments of the general population - patterns not generally considered hazardous and that call for primary prevention approaches (i.e., policy changes targeting supply and availability of alcohol, media and communication based efforts to change knowledge, attitudes and beliefs).

Several recent reports suggest that harms may in fact disproportionately arise from patterns of low to moderate consumption in a phenomenon termed the

'prevention paradox.' Spurling and Vinson (2005), using case control methods and hospital emergency data, and Weitzman and Nelson (2004), analyzing four panels of a nationally representative survey (approximately 50,000 college youth), both found that the magnitude of drinking harms arising from persons drinking at low to moderate levels outweighed harms arising from persons drinking at heavier and extreme levels.

These findings turn what may feel like common sense on its head and suggest that as a society we focus attention on social and policy factors that incrementally reduce low and moderate consumption among the majority of the populace to maximally improve public health. Despite ample evidence supporting the efficacy of policy and other social or environmental prevention strategies for reducing alcohol consumption and harms, there appears to be a disinclination globally to make use of them.

In the case of young people in college, new reports give rise to optimism that communities can come together to change their environments in ways that moderate consumption and reduce harm. Prospective quasi-experimental evaluation of purposeful efforts to change college drinking environments show signs of success as my work with colleagues recently demonstrated, although a great deal remains to be learned on this topic. Examples of effective environmentally oriented strategies for moderating consumption include greater enforcement of minimum drinking age laws, responsible beverage server training, tax increases on beverage alcohol.

So what do we learn by considering together the two discussions raised here about brain structure and risk taking and population patterns of alcohol related morbidity and prevention strategies?

First, adolescence through young adulthood appears to be a period of physiological, psychological and sociological vulnerability - a triple whammy from the perspective of substance use. Indeed these years have repeatedly been shown to be periods of peak use and abuse of licit and illicit substances. In response to this vulnerability we have a range of prevention and intervention options reflecting individual and environmental or population approaches. While we may never be able to pick a 'best' strategy for prevention, we should strive for a rationale approach that matches primary, secondary and tertiary prevention strategies to a well diagnosed problem and clear health objective. Second,

comprehensive community change approaches that include social policy interventions focused on reducing alcohol's supply and availability appear to moderate consumption and reduce harms among young people - including those in college who are at peak risk. These efforts are challenging to implement however and require a great deal of political will to enact. Nevertheless, it may be that our deepening understanding of the unique vulnerabilities of youth coupled with recognition of the distribution of health harms from low, moderate and heavy alcohol use patterns can help increase the political will and commitment required to undertake these efforts. Doing so is likely to make our environments safer for young people, helping them move through life unencumbered by substance use habits and harms. It's worth a college try.

What do you think? You can address comments to Elissa Weitzman.

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