

Rigorous Demands at School May Keep Teenagers Out of Trouble

By AUSTIN FRAKT

Like all parents of teenagers, I worry that my children will engage in risky behavior, including drinking, smoking and drug use. The more time they spend doing healthier extracurricular activities — soccer, piano, cleaning their rooms (ha!) — the better.

But it turns out that what they do in school can also affect their choices outside the classroom.

Between 1993 and 2013, 40 states and the District of Columbia increased graduation requirements: a specified number of courses in each subject necessary for a high school diploma. The increases have been most common in mathematics and science, and may partly explain the growth in college majors in STEM fields. In 1993, states required between two and six math and science courses for high school graduation. By 2014, the range was four to eight.

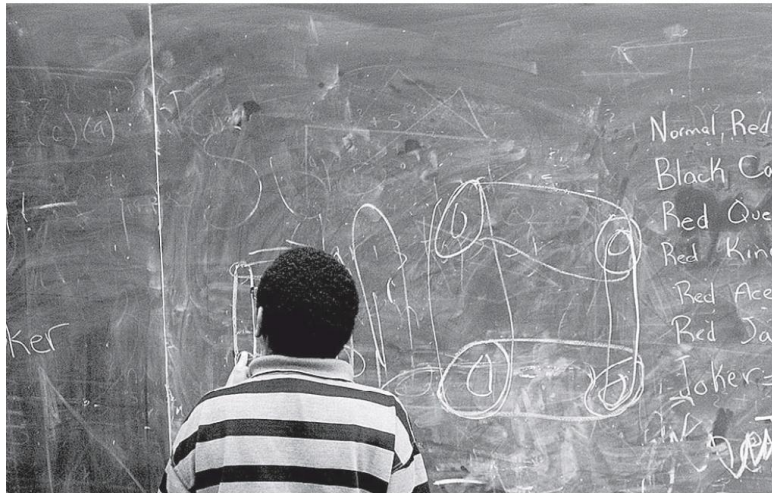
A paper in the *American Journal of Health Economics* suggests a connection: Some of the reduction in risky behavior by teenagers is driven by greater academic demands at school.

Zhuang Hao, an economics Ph.D. candidate, and the economist Benjamin Cowan, both at Washington State University, examined the number of math and science courses that states required for a high school diploma and the relationship to risky behavior among high school students. Their data spanned 1993 to 2011 and included over 100,000 students across 47 states (excluding Colorado, Nebraska and Iowa, which did not participate in the surveys of students upon which the analysis relies).

According to the study, these increases in state math and science high school graduation requirements reduced alcohol consumption without any offsetting increase in marijuana or cigarette use. More demanding academic standards decreased the number of days teenagers drank as well as the rate at which they engaged in binge drinking (defined as more than five drinks at a time).

For each additional math or

Austin Frakt is director of the Partnered Evidence-Based Policy Resource Center at the VA. Boston Healthcare System.



ALEX WRÓBLEWSKI/THE NEW YORK TIMES

A math camp. Studies link increased high school math graduation standards to future earnings.

science course required of high school students, the probability they drank or binge drank fell 1.6 percent. The results are a bit larger for males and for nonwhite students.

The study by Mr. Hao and Mr. Cowan could not explain why graduation requirements have larger effects on the behavior of male and nonwhite students. One possible explanation is that male teenagers binge drink more than

A study reveals that harder classes help curtail risky behavior.

females, presenting a greater opportunity for reduction.

But that explanation breaks down for nonwhites because they drink less than white students. Here, the explanation could be that nonwhite students are more affected by state requirements because they are more likely to take the minimum number of courses required or attend schools with standards that were lower before the state laws passed. Another study, focused on future earnings, found that male

and nonwhite students benefited more from higher math standards for high school graduation.

One concern is that the results could be explained by high school dropouts. Earlier research found that higher requirements encouraged some children to drop out of school, and out of the study sample. Other work shows that staying in school reduces smoking rates and delays drinking. If those who drop out are the ones likelier to drink, that could skew the findings. But dropout rates are very low for students under 17 because they are required by law to attend school until that age. The study findings hold up when examining only this younger group.

The study doesn't explain why greater graduation requirements might reduce risky behavior, but the authors offer two hypotheses. First, greater demands at school take more time: longer hours doing homework and studying. Students who spend more time on schoolwork have less time to do other things. (They could also be reducing sleep or exercise.)

Second, a number of other studies have shown that increased high school math graduation requirements have been linked to higher future earnings. This increases the potential loss to students who jeopardize those

future earnings through risky behavior. (This second theory requires teenagers to be forward-looking, something their parents might find implausible.)

Rates of alcohol, drug and tobacco use among teenagers are high enough to provoke concern among their parents. According to the Centers for Disease Control and Prevention, about one-third of high schoolers consumed alcohol in the last month, and 18 percent had five or more drinks when they did so. One in five had used marijuana in the past month, and more than 5 percent had used cocaine or hallucinogenic drugs. Just over 10 percent of high schoolers smoke cigarettes.

Nevertheless, by some measures, teenagers are engaging in less risky behavior than they used to. Their rates of alcohol and cigarette use have trended downward since the early 1990s, though use of other drugs is up.

Reducing risky behavior early in life is important because habits established in youth often persist into adulthood. Detering those behaviors early has long-term benefits. A clever body of work takes advantage of school choice lotteries, in which families who win the lottery can place their children in their preferred — typically higher-quality —

The Upshot

The Upshot provides news, analysis and graphics about politics, policy and everyday life. nytimes.com/upshot

school. For example, one study at the Charlotte-Mecklenburg, N.C. school district found that lottery winning middle school and high school enrollees entered higher-quality schools and committed less crime seven years later.

There are other ways the education system can help children be and stay healthy. There are many evidence-based programs that schools can use to directly address the factors that drive or deter substance use. One study found that higher teacher wages are associated with lower mortality. A study of Southern states found that decreasing student-teacher ratios, increasing teachers' wages and lengthening the school year are all associated with better future health of students, including reduced smoking, obesity and mortality.

There is variation in results of studies like these. Not all find a connection between education and health or behavioral outcomes. It's also reasonable to be concerned that when connections are found, correlations are not causation.

But many studies in this area exploit natural experiments: events that are effectively random and not within the control of study participants. "Changes in school quality were generally not the direct choices of families and local communities," said Ezra Golberstein, an associate professor at the University of Minnesota School of Public Health and a co-author of the study of Southern states. "That increases our confidence that the findings are causal."

These aren't the only ways to deter risky behavior by teenagers. Increasing taxes on alcohol and tobacco products also has that effect. But more rigorous demands at school — as well as approaches like lengthening the school year — may deter students from a broader set of risky behaviors while better preparing them for high wage jobs, things that taxes alone cannot do.