

Obesity Among U.S. High School Students

[Announcer] *This program is presented by the Centers for Disease Control and Prevention.*

[Melia Haile] Welcome to this edition of *PCD Sound Bites*. I'm your host, Melia Haile. Obesity rates among adolescents 12 to 19 in the United States continues to rise and increased from about 15 percent to about 21 percent from 1999 to 2000 and 2015 to 2016. Obesity can lead to serious chronic diseases, such as asthma, obstructive sleep apnea, joint problems, high blood pressure, high cholesterol, low self-esteem, and depression. In addition, children with obesity are more likely to have obesity in adulthood, leading to long-term illness and risk of early death.

Joining me by phone today is Edward Hu, a junior at Oxford High School in Oxford, Mississippi, and winner of PCD's 2018 Student Research Paper Contest in the high school category. We'll be discussing his winning paper which looks at obesity among high school students in the United States. Thank you for joining me, Edward.

[Edward Hu] Thank you so much for having me.

[Melia Haile] Edward, tell us about your study.

[Edward Hu] So, I conducted a retrospective study using a nationally representative sample of over 15,000 high school students who participated in the 2015 Youth Risk Behavior Survey. I assessed the association between modifiable risk factors and obesity, and estimated the population attributable fractions of certain modifiable risk factors.

[Melia Haile] What exactly are population attributable fractions?

[Edward Hu] So, a population attributable fraction is an estimate of the proportion of disease, such as obesity, that can be prevented with the removal of a risk factor.

[Melia Haile] What role did this method play in your study and how did it set your study apart from others?

[Edward Hu] I used the population attributable fraction to find out the estimated proportion of obesity that could be prevented with the removal of certain risk factors. So, to my knowledge, my study was the first study to use population attributable fractions to quantify the association between modifiable risk factors and childhood and adolescent obesity in the United States.

[Melia Haile] So, you found a number of lifestyle behaviors attributed to obesity among adolescents in your study. Tell us about your findings and why they are so striking.

[Edward Hu] First of all, we found the combination of all modifiable unhealthy dietary behaviors, physical activities, and other lifestyle risk factors is associated with 34.8 percent of obesity in this population. So, this is striking because it shows that, if all students became physically active, ate healthy foods, and adopted healthy lifestyles, the prevalence of obesity in this population could be substantially reduced.

In addition, we found that 42.4 percent of students did not participate in at least one sports team during the past school year, and this modifiable risk factor had the most substantial contribution to obesity.

[Melia Haile] What did you find when you looked at tobacco use and sleep as risk factors for obesity?

[Edward Hu] We found that tobacco use and having less than eight hours of sleep are generally both risk factors of obesity. The population attributable fraction associated with tobacco use is 5.73 percent and the population attributable fraction associated with a lack of sleep is 1.95 percent.

[Melia Haile] Did any of your study results surprise you?

[Edward Hu] Yes, actually. We actually observed negative population attributable fractions for a few risk factors. So, a negative population attributable fraction indicates that the risk factor is protective. So, for example, not drinking milk during the seven days before the survey showed a negative association with having obesity, with a PAF, or population attributable fraction, of negative 3.73 percent. So, a possible explanation of this is that milk, especially whole milk, contains high levels of saturated fat which could potentially lead to childhood or adolescent obesity. Also, not eating vegetables also showed a negative population attributable fraction of negative one percent.

[Melia Haile] What led you to study obesity among high school students, and why are you so interested in this topic?

[Edward Hu] So, I have always been interested in the topic of obesity prevention. I live in Mississippi, one of the most obese states in the nation. In addition, I know many people who have been affected by obesity, some of them being my very close friends.

[Melia Haile] What advice do you have for other students who are interested public health and research?

[Edward Hu] First, I would advise them to try and focus on a topic area that they're passionate about and that can improve the health of the community. In addition, they should make sure to find a good and supportive mentor.

[Melia Haile] Oh, excellent advice! Thank you, Edward. You can read his study, "Obesity Among High School Students in the United States: Risk Factors and Their Population Attributable Fraction," online at [cdc.gov/pcd](https://www.cdc.gov/pcd).

The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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