ASHES, Vol. 19(2) – To brighten up or lightin' up: The link between depression and adolescent nicotine use

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Approximately one out of every six high school students in the United States report current tobacco use. This is especially alarming considering smokers who start younger are more likely to continue smoking even into later adulthood. Because of these circumstances, school-based nicotine cessation and prevention programs are of vital importance. However, when designing these programs we need to understand the factors that might push adolescents towards smoking in the first place. This week, ASHES reviews a study by Lauren Gorfinkel and colleagues that examined the relationship between depression and nicotine use.

What was the research question?

Does the nicotine use of adolescents with depression differ from those without depression?

What did the researchers do?

The researchers employed multiple years of data from the Monitoring the Future survey, an annual, nationally representative survey of drug and alcohol attitudes among U.S. 8th, 10th, and 12th graders. They grouped participants into one of four categories: vaping with cigarette use, vaping without cigarette use, cigarette use only, or neither vaping nor cigarette use. Additionally, they asked four questions about depressive symptoms. The researchers categorized participants as depressed if their responses to these questions indicated at least some agreement. To compare depression at different levels of nicotine use, the researchers employed multinomial logistic regression modeling. This technique builds on logistic regression and allows the researchers to compare multiple categories of the dependent variable (nicotine use) at once.

What did they find?

Slightly over 10% of participants reported some form of nicotine use, with older students reporting higher rates than younger students. Adolescents with

depression reported higher rates of nicotine use in each category compared to their peers without depression, though this relationship varied by grade level (see Figure). The link between depression and nicotine use is strongest among 8th graders compared to either 10th or 12th graders; 8th graders with depressive symptoms were more than 3.5 times more likely to vape and smoke than 8th graders without depressive symptoms. The links between depression and nicotine got weaker as kids aged.

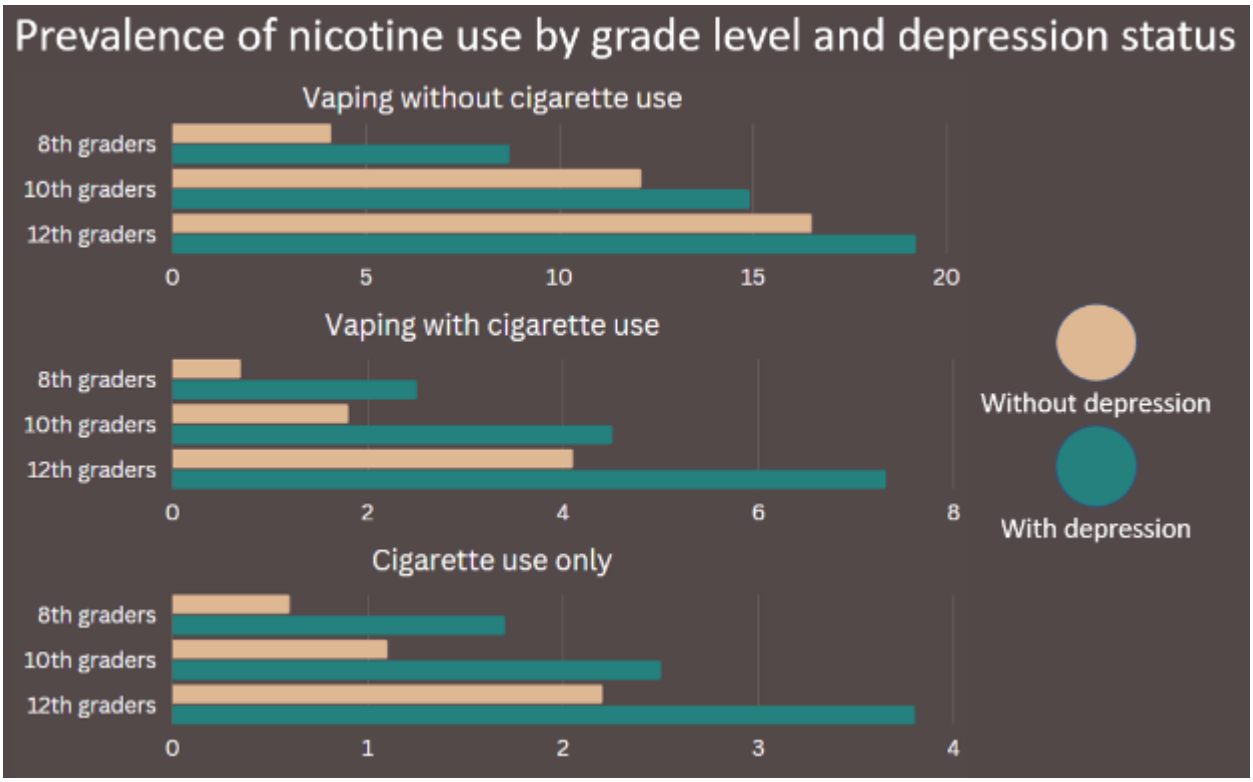


Figure. Relationship between depression, grade level, and nicotine use. Though both depression and higher grades were related to nicotine use, the effects of depression were weaker at higher grade levels. Click image to enlarge.

Why do these findings matter?

Increasing mental health resources in schools, especially in the younger grades, may lower the rate of adolescent smoking. In conjunction with this, current cessation/prevention programs should include lessons on how to avoid smoking while dealing with difficult emotions and use healthier coping strategies such as seeking support from friends and family. For example, some school districts offer social-emotional learning curricula that teach kids how to manage their emotions, among other crucial skills. Though this study did not test causality, prior studies have suggested a bidirectional relationship between depression and smoking. In other words, it is difficult to address one without resolving the other because they tend to amplify one another.

Every study has limitations. What are the limitations in this study?
The question this study used to assess smoking status asked about *any* smoking in the past month. Because of this, the study is unable to identify whether adolescents with depression use more nicotine or if they are more *likely to try* nicotine. Additionally, the questions used to assess depression were not based on a clinical assessment. Finally, as stated above, due to the cross-sectional nature of this study, it cannot be determined whether, and to what extent, depression increases the risk of smoking or vice versa.

For more information:
Individuals who want to quit smoking may find advice through the CDC. Parents who want to have a conversation about smoking with their children may find guidance through the American Lung Association. Additional resources can be found at the BASIS Addiction Resources page.

— John Slabczynski

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