

Expanded screening tool could improve substance use disorder diagnosis and treatment

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Researchers said the computer adaptive test is not only brief but has the best psychometric properties of any substance use disorder assessment available today. Credit: Leslie Hulvershorn

Researchers from the Indiana University (IU) School of Medicine have expanded a screening tool that could lead to more accurate and timely diagnoses—and therefore treatment—of substance use disorder.

IU researchers partnered with Robert Gibbons, a professor at the University of Chicago who developed the first computerized adaptive test for mental health, to expand the tests to include substance-specific information and a greater range of substances. It also looks at both current and lifetime usage.

This information, researchers said, is valuable for providing substance-specific and both current and past [diagnoses](#) to guide substance use disorder [treatment](#)—similar to a clinical [assessment](#). Details of the development of the expanded assessment approach were recently published in *Drug and Alcohol Dependence Reports*.

"Appropriate substance use disorder treatment begins with accurate assessments, but staff shortages, lack of training and limited access to traditional assessment resources all present obstacles to accurate diagnoses," said Dr. Leslie Hulvershorn, associate professor of psychiatry at the IU School of Medicine, who led the project. "Our new approach, called the Computerized Adaptive Test for Substance Use Disorder Expanded, provides accurate substance use disorder diagnoses without the need for a trained clinician by using a web-based modality that is efficient, scalable and flexibly implemented."

The assessment includes questions targeted to a patient's specific level of severity and is completed by the patient online using a smartphone, tablet or computer, either at home or during a clinical appointment.

In their study, researchers compared the [diagnostic accuracy](#) of the expanded computer adaptive test to that of a clinician-administered "gold standard" diagnostic interview in 275 adults. The expanded test

evaluated use and consequences of use of alcohol, cannabis, opioids, stimulants, sedatives, hallucinogens and nicotine/tobacco at the present time and over the participants' lifetimes.

They found that on average, the computer adaptive test accurately predicted substance use disorder results in less than four minutes, compared to clinician interviews, which averaged an hour in length. Researchers said the computer adaptive test is not only brief but has the best psychometric properties of any substance use disorder assessment available today.

"The expanded test has the potential to improve identification of individuals with substance use disorders across settings without extensive efforts to hire and train more clinical staff and should substantially decrease the amount of time spent conducting assessments," Hulvershorn said. "This tool could be instrumental in helping one of our most vulnerable populations receive the treatment they need."

In addition to the current study, researchers are also working on how the computer adaptive test applies to adolescents age 11 to 17. The work at IU was supported by the Substance Abuse and Mental Health Services Administration's State Opioid Response Grant administered by the Indiana Family and Social Services Administration, Division of Mental Health and Addiction.

"Our hope is that by equipping our clinical providers with this evidence-based assessment tool, they will use this clinically detailed data to develop a deeper understanding of a patient's needs and treat them appropriately," said Douglas Huntsinger, executive director for drug prevention, treatment and enforcement for the state of Indiana. "This is an opportunity to leverage technology to improve the accessibility and quality of care for Hoosiers with [substance use disorder](#)."

Additional researchers on the study include Zachary W. Adams, an assistant professor of psychiatry at the IU School of Medicine; Michael P. Smoker, a postdoctoral researcher in the Department of Psychiatry at the IU School of Medicine; and Matthew C. Aalsma, professor of pediatrics at the IU School of Medicine.

More information: Leslie A. Hulvershorn et al, Development of a computerized adaptive substance use disorder scale for screening, measurement and diagnosis—The CAT-SUD-E, *Drug and Alcohol Dependence Reports* (2022). [DOI: 10.1016/j.dadr.2022.100047](https://doi.org/10.1016/j.dadr.2022.100047)

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