

Quantifying risk of cognitive dysfunction among people in drug treatment programs

August 16 2021



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Michael Copenhaver and Roman Shrestha from the College of Agriculture, Health and Natural Resources have developed an improved measure for cognitive dysfunction risk for opioid-dependent patients in

drug treatment programs.

Shrestha and Copenhaver, who are both researchers in the Department of Allied Health Sciences, have been studying drug treatment interventions and HIV prevention among people who use drugs for years. While conducting their studies, they realized as many as 60% of participants were suffering from [cognitive dysfunction](#), or deficits in things like attention and short-term memory. This meant many participants did not gain the full benefit of the interventions the researchers were testing, because they could not process information and instructions in the same way as someone without cognitive dysfunction.

There were several existing assessment instruments that measure cognitive dysfunction, but they are too long and complex for the fast-paced nature of community drug treatment programs where staff have limited time to sit down with patients.

Copenhaver and Shrestha worked with John Gunstad, a neuropsychologist at Kent State University, to develop a simple, effective assessment tool to determine [risk factors](#) for cognitive dysfunction among opioid-dependent persons in drug treatment programs. They determined which measures from two longer inventories were most highly correlated with the outcomes of the full assessment. They recently published their findings in *Drug and Alcohol Dependence*.

"This is a predictor of a more comprehensive battery," Copenhaver says. "Because we can't administer hours and hours of testing."

The research team looked at two standard assessments for [cognitive impairment](#), the Brief Inventory of Neuro-Cognitive Impairment (BINI) and the NIH Toolbox, which is regarded as the gold-standard of cognitive dysfunction assessments, to identify which risk factors to include on their own tool.

They identified four risk factors that were the most statistically significant: patients who count with their fingers, forget the names of common things, drop things frequently, and those who indicate parts of their bodies feel numb.

The data-driven assessment tool combines cognitive measures with patient demographics and health history to produce an overall risk score. This approach has also been successfully used with other patient populations, including people with diabetes and heart disease.

"Using already-available information from medical charts gives a better picture of the patient," Shrestha says.

They identified factors such as being over 50 years old, having a history of psychiatric diagnosis, and a history of overdose as correlates for cognitive dysfunction.

Being able to quickly identify if a patient will need additional accommodations helps staff ensure they will get the best treatment possible.

"It'll make what they do with patients much more efficient," Copenhaver says.

This assessment measure requires little training to administer, which is a great benefit for community programs whose staff are not typically highly trained physicians. It can also be administered virtually, which is a necessity during public health crises like the COVID-19 pandemic and opens doors to new telehealth approaches to drug treatment.

As part of the study, the UConn research team worked in drug treatment programs through the APT Foundation in New Haven, which uses a very common drug treatment model. This means this [assessment](#) is suitable

for many other settings, and other kinds of programming.

Copenhaver and Shrestha both work on HIV prevention and PrEP adherence among individuals who use drugs. The lessons the researchers learned in the context of [drug](#) treatment programs can easily apply to their HIV-prevention efforts.

The researchers are now looking to extend this work to help staff identify how to translate a patient's risk score into the specific accommodations the individual needs for HIV prevention interventions.

"We hope that by piloting it in this kind of setting it will be easily translatable to similar programs throughout the U.S. and international settings," Copenhaver says.

More information: Michael M. Copenhaver et al, Developing a cognitive dysfunction risk score for use with opioid-dependent persons in drug treatment, *Drug and Alcohol Dependence* (2021). [DOI: 10.1016/j.drugalcdep.2021.108726](https://doi.org/10.1016/j.drugalcdep.2021.108726)

Provided by University of Connecticut

Citation: Quantifying risk of cognitive dysfunction among people in drug treatment programs (2021, August 16) retrieved 24 June 2024 from <https://medicalxpress.com/news/2021-08-quantifying-cognitive-dysfunction-people-drug.html>

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