Computer games may help forensic psychiatry patients

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Dr. Anthony O. Ahmed is a research psychologist at the Medical College of Georgia at Georgia Regents University. Credit: Phil Jones

Brain-training computer games may help restore memory and competency to forensic psychiatry patients in state mental hospitals, researchers say.

Computer software designed to improve memory and thinking may be used with psychotherapy, medication and other approaches to help these patients, considered among the most severely mentally ill, said Dr.

Anthony O. Ahmed, research psychologist at the Medical College of Georgia at Georgia Regents University.

Ahmed, who works with patients at the state psychiatric facility, East Central Regional Hospital, is among the first to explore the potential of cognitive remediation in patients confined to state mental hospitals after being found incompetent to stand trial or not guilty by reason of insanity. The brain- training approach is being used in maladies ranging from traumatic brain injury to Alzheimer's.

His work has earned him the Science to Practice Award from the Brain & Behavior Research Foundation and the Cognitive Remediation in Psychiatry Conference. The award will be presented June 7 during the 16th Annual Conference in New York City.

"It may be that neurocognitive deficits contribute to a limited capacity to gather information, hold information in working memory, and analyze the information to make sound decisions. That limited capacity may have contributed to their involvement in the justice system in the first place," Ahmed said. "For some patients, the neurocognitive deficits may also contribute to difficulty participating in their own defense."

The vast majority of forensic psychiatry patients have schizophrenia or related syndromes and – while not part of the official diagnosis – clear neurocognitive deficits, which often surface before more classic symptoms such as hallucinations, Ahmed said. That's why he thought adding cognitive remediation to the mix could improve competency. Along with hospital Chief Executive Officer Nan Lewis, Mental Health Director, Dr. Brian Apple, and others, Ahmed helped establish the "brain gym" at East Central Regional Hospital, which began with bringing in a few laptops and evolved into an ongoing remediation program where patients spend three hours a week for up to 40 weeks.

Ahmed and his colleagues have been collecting pilot data from both the forensic unit as well as the general mental health unit for more than a year. "We're finding that forensic patients with schizophrenia have deficits in some neurocognitive areas that are far worse than the general psychiatric population," he said. These patients seem to have particular trouble holding information in their immediate memory and longer-term verbal and visual learning. "Many of our patients seem to benefit but our forensic patients may need this even more," he said.

There's no doubt that impaired thinking coupled with environmental stress, such as homelessness and/or joblessness, is a recipe for disaster, he notes. "It's important to create a learning platform that increases the capacity to manage stress, conflicts, and difficulties through improved thinking capacity," Ahmed said.

Not surprisingly they are finding, regardless of the diagnosis, younger patients – who tend to have more malleable brains - tend to benefit most, yet even older patients quickly take to the engaging games that require close attention and offer rewards for success. Perhaps surprisingly, Ahmed is also finding anecdotally that many forensic psychiatry patients don't want to stay in a hospital to avoid prison; they want to get better, get on with their lives, and pursue their life goals and valued social roles.

Next steps include learning more about how cognitive remediation works, determining the genetic profiles of those who respond best and least in order to better individualize intervention, and how remediation influences basic biology. The researchers want to further explore the possible benefits of cognitive remediation on legal competence and maximize the impact of improved neurocognitive capacity on functional outcomes.

"Your functional capacity is what you can do, not what you are actually doing," Ahmed said. That means providing patients the opportunity to

do. "Think about it: You can learn to shoot a basketball by watching a video but you are not going to get better as a basketball player unless you get out on the court."

Ahmed also is an investigator on a national study of the impact of brain training on people with schizophrenia living in the community. The e-CAeSar study, sponsored by San Francisco-based Brain Plasticity Inc. and funded by the National Institute of Mental Health, is underway at 11 sites nationally – including the Medical College of Georgia – as part of the company seeking new device clearance from the Food and Drug Administration.

Provided by Medical College of Georgia