Perspectives on neurocognitive rehabilitation as an adjunct treatment for addictive disorders: From cognitive improvement to relapse prevention

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Abstract
Addiction, as a brain disorder, can be defined with two distinct but interacting components: drug dependency and neurocognitive deficits. Most of the therapeutic interventions in addiction medicine, including pharmacological or psychosocial therapies, that are in clinical use have been mainly focused on directly addressing addictive behaviors, especially drug use and urges to use drugs. In the field of addiction treatment, it is often presumed that drug users’ neurocognitive deficits will reverse following abstinence. However, in many cases, neurocognitive deficits are not fully ameliorated following sustained abstinence, and neurocognitive function may further deteriorate in early abstinence. It can be argued that many cognitive functions, such as sustained attention and executive control, are essential for full recovery and long-term abstinence from addiction. Recent advances in cognitive neuroscience have provided scientific foundations for neurocognitive rehabilitation as a means of facilitating recovery from drug addiction. Neurocognitive rehabilitation for drug addicted individuals could be implemented as part of addiction treatment, with highly flexible delivery methods including traditional “paper and pencil” testing, or computer-based technology via laptops, web-based, or smartphones in inpatient and outpatient settings. Despite this promise, there has been limited research into the potential efficacy of neurocognitive rehabilitation as a treatment for drug...