Editorial

Neuropsychological alterations in consumers with psychoactive substance use

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Drug use leads to cognitive deterioration and alterations in various neuropsychological processes, such as processing speed, memory, attention, and executive functions (Piñón Blanco et al., 2019). As a result, neuropsychological impairments associated with substance use have been described as "prefrontal-type symptoms," which include difficulties in problem-solving, planning, concept formation, strategy implementation, attentional control, working memory, and the regulation of social and emotional behavior (Pedrero-Pérez, 2015, p. 385).

Research indicates that neuropsychological deficits vary depending on the type of psychoactive substance and its effects on the central nervous system, whether depressant, hallucinogenic, or stimulant. For instance, substances that depress the nervous system, such as alcohol, primarily impact processing speed and working memory. This can manifest as slowed cognitive function, though typically without severe behavioral disruption (Garrido & Fernández-Guinea, 2004; Landa et al., 2004; Mejía-Benavides et al., 2019; Serrano et al., 2020).

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In contrast, prolonged stimulant use has been linked to impairments in executive functions, particularly working memory (difficulty completing tasks), cognitive flexibility, planning, and decision-making (Rodrigues et al., 2015; Vallejo Reyes, 2019; Rodrigues et al., 2019; Ríos, 2021). Meanwhile, hallucinogens predominantly affect sustained attention, long-term memory, language, and visuospatial skills (Bechara, 2003; Fontes et al., 2011; Pozo et al., 2019).

Overall, evidence suggests that individuals with psychoactive substance addictions experience impairments in higher-order cognitive functions (Tirapu & Ruiz, 2011; Basuela Herrera, 2008; Verdejo García & Bechara, 2009; Lorea et al., 2005), particularly in memory, sustained attention, and executive functioning. These impairments translate into difficulties with planning, self-regulation, impulse control, and decision-making (Lorea Conde et al., 2005; Basuela Herrera, 2008; Verdejo García & Bechara, 2009).

Given these effects, neuropsychological assessment plays a crucial role in diagnosing substance use disorders. It helps build cognitive profiles and provides guidelines for treatment and rehabilitation, supporting long-term recovery and increasing the effectiveness of interventions (Verdejo-García, 2016).

In general, addiction treatments and recovery processes must enhance patients' mnemonic abilities—that is, their capacity to encode, store, and retrieve information effectively (Weinstein & Shaffer, 1993). Since memory is essential for planning and behavioral self-regulation, its role is evident in daily life activities, both basic and complex.

Experts such as Viña and Herrero (2004), Gómez (2006), and Basuela and Martínez Gutiérrez (2008) emphasize that rehabilitation programs should address executive dysfunction to improve planning, cognitive flexibility, behavioral self-monitoring, and decision-making skills.

Recognizing the neuropsychological alterations caused by substance use allows for the development of intervention strategies grounded in neuropsychological rehabilitation principles. These may include compensation or substitution strategies (Rojo et al., 2011) and cognitive remediation techniques (Pedrero et al., 2011; Ikezawa et al., 2012; Medalia & Freilich, 2008). This highlights the necessity of interdisciplinary teams that can guide patients through recovery, ensuring that adaptation is viewed as a learning process rather than mere resistance to change (Weinstein & Shaffer, 1993).

In other words, deficits in cognitive functions such as attention, memory, and executive functioning, which have been documented in studies on the neurobiological damage caused by substance use (Bausela Herrera, 2008), underscore the need for integrating new therapeutic approaches into addiction treatment. This supports the idea that multidisciplinary teams should

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incorporate neurocognitive rehabilitation and socio-educational techniques into treatment protocols to improve both psychosocial and functional recovery outcomes (De la Lama & Casare, 2011).

From a neuropsychological perspective, these findings call for a reconsideration of prevention, assessment, and rehabilitation strategies for individuals with substance use disorders. It is essential to incorporate knowledge of the neuroadaptive changes associated with addiction, as these significantly influence both patient behavior and rehabilitation progress (Verdejo & Tirapu, 2011).

Although cognitive rehabilitation therapy has proven effective in treating various brain disorders (Rojo et al., 2011), further research is needed to explore its application in addiction treatment (Rojo-Mota, 2008; Rojo-Mota et al., 2009). However, existing studies (Goldman, 1990; Blume et al., 2005) indicate that incorporating cognitive rehabilitation into addiction interventions enhances brain function and optimizes the impact of other therapeutic strategies (Rojo et al., 2011; Fals-Stewart, 1993). It is also crucial to note that addiction rehabilitation programs often include topics such as impulse control, life planning, motivation for change, and relapse prevention (Bausela & Santos, 2006; Bausela Herrera, 2008; De la Lama López & Casares López, 2011).

Conflict of the interest

The authors state that they do not have a conflict of interest with the institution or any commercial association.

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