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Digital Therapeutics: A Personalised Approach to Relapse Prevention

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Abstract

With the advancement in the field of rehabilitation, many new therapeutic techniques are being introduced; however, the field of research in response to relapse prevention has largely remained unexplored. Approximately 40% to 60% of individuals with General Substance Use Disorder relapse within a year after completing the treatment (NIDA 2018), and these numbers increase in specific substance use disorders like Opioid Use Disorders (heroin, Prescription Opioids) to nearly 85% to 95% within the first year. (Soedo et al.). This literature review examines the use of digital therapeutics as an emerging approach to address this stagnation. Traditional interventions in rehabilitation often fail to account for the physiological and behavioral changes that precede relapse. Recent developments in wearables, biometric monitoring, and AI-driven analytics suggest new possibilities for personalized, continuous care. However, existing literature reveals a significant gap: only a few studies have explored how digital tools can track and interpret an individual's significant bodily changes like shifts in heart rate variability, sleep patterns, or stress markers that may signal a return to substance use. This literature review synthesizes findings from current digital health applications and proposes an integrative model in which digital therapeutics are equipped to learn and recognize a recovering individual's unique relapse signature with the help of a client's available addiction history. These systems could then generate adaptive alerts or interventions like real-time coping strategies, connection to peer support, or clinician intervention, designed not just to warn but to actively disturb the relapse process. By shifting the focus from reactive to proactive care, digital therapeutics may redefine relapse prevention mechanisms as personalized, continuous, and dynamic models of change.

Keywords: digital therapeutics, relapse intervention, substance use disorder, rehabilitation