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Cognitive Control as a Mechanism in Alcohol Use Disorder: A Translational Systematic Review of Reviews

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A major research goal in the study of addiction is to better understand the underlying causes of substance use disorders, refine their diagnosis, and develop personalized treatments to address them. The Alcohol Addiction Research Domain Criteria (AARDoC) is a mechanism-based framework that aims to identify and characterize the core etiologic processes indicated in alcohol use disorder (AUD). AARDoC describes three functional domains, including cognitive control, reward/incentive salience, and negative emotionality. The overall aim of the current systematic review of reviews was to identify reviews examining AUD etiology, core theories, and associated endophenotypes. Search strategies included comprehensive database searches, manual forward and backward searches, and consultation with experts. The search resulted in a total of 142 eligible reviews, 16 of which fit into the cognitive control domain, which is the focus of the current presentation. Cognitive control describes the executive functions involved in processes such as making decisions, planning, and response inhibition. Within the current framework, cognitive control was broken into impulsivity and compulsivity with conscientiousness and response inhibition falling under the former and compulsive use under the latter. Each of these processes were further divided into increasingly specific mechanistic components and processes, resulting in a hierarchically organized framework. The resulting insight into the specific mechanisms that are encompassed by the cognitive control domain provided by the current review provides a more thorough understanding of the etiologic processes implicated in AUD and provides targets for personalized treatment.