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Integrating Genomic and Environmental Information to Deliver Personalized Feedback on Substance Use Disorder Risk: The Comprehensive Addiction Risk Evaluation System (CARES)

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Substance use disorders are influenced by genetic and environmental factors. The field has made tremendous progress in identifying both the behavioral and environmental factors that predict which individuals are most likely to develop substance use problems, and more recently, specific genetic variants that elevate risk. Polygenic scores calculated from these well-powered genome-wide association studies now account for ~10% of the variance in likelihood of developing problems in independent samples (Karlsson Linnér et al., 2021). Furthermore, individuals are interested in receiving personalized genetic information for SUDs, with ~80% of people saying they would want access to their personalized risk information (e.g., Driver et al., 2020). Our team has developed a platform to provide personalized information about an individual's risk for SUD that integrates genomic and behavioral/environmental information, and then connects individuals to resources based on their risk profile: the Comprehensive Addiction Risk Evaluation System (CARES; addictionrisk.com). The goal of CARES is to provide personalized risk information to 1) prevent the development of substance use problems in at-risk individuals and 2) facilitate earlier intervention for individuals who have begun to use at problematic levels before problems become severe. We have enrolled over 200 emerging adults in an RCT to evaluate the program, with initial results indicating that very few participants experience upset or regret about receiving personalized risk information, and the vast majority report that the results will be helpful in planning for the future. These findings suggest that personalized feedback for SUD risk could be a valuable tool for SUD prevention/intervention.