

Neurocognitive and personality dimensions of impulsivity as common and specific candidate endophenotypes for opiate and stimulant dependence

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BACKGROUND. Impulsivity is among the strongest candidate endophenotypes for substance dependence. However, research progress has been slowed by the heterogeneity of both impulsivity and substance dependence. The present study addresses these limitations by comprehensively assessing different impulsivity dimensions among individuals with substance dependence in Bulgaria, the majority of whom are mono-dependent on either heroin or amphetamine. The aim is to explore various personality and neurocognitive dimensions of impulsivity as endophenotypes for substance dependence in general and for opiate and stimulant dependence specifically, by examining sibling correlations on neurocognitive and personality measures. **METHOD.** Pearson correlations between 70 individuals with substance dependence and their non-dependent siblings were run on 7 neurocognitive measures and 7 personality measures. The sample was then split by substance (heroin and amphetamine; $n = 34$ and 28 individuals and their non-dependent siblings, respectively) and the correlations were run again. **RESULTS.** Among the full sample, siblings were significantly and moderately correlated on the Balloon Analogue Risk Task (BART) and were marginally significantly correlated on the Barratt Impulsiveness Scale (BIS-11) and the Sensation Seeking Scale (SSS-V). When the sample was split by substance, the heroin sibling pairs were significantly correlated on the Cambridge Gambling Task (CGT), the BART, and the SSS, while the amphetamine sibling pairs were significantly correlated on the Go/No Go (GNG) Task and marginally significantly correlated on the BIS. **CONCLUSIONS.** Substance-specific dimensions of impulsivity appear to aggregate among siblings where one has substance dependence and the other is non-affected. Risk-taking propensity (BART) was common to both opiate and stimulant sibling pairs; impulsive choice (CGT) and sensation seeking (SSS) was specific to opiate sibling pairs; impulsive action (GNG) and trait impulsivity (BIS) was specific to stimulant sibling pairs. These findings provide preliminary evidence for the differential utility of various dimensions of impulsivity as endophenotypes for specific substance dependencies.