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Associations between polygenic liability for schizophrenia and cannabis-induced experiences

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Prior studies have found that genetic liability for schizophrenia is associated with psychosis-like experiences, but few studies have examined this in the context of cannabis-induced psychosis-like experiences. We tested whether polygenic risk scores (PRS) for schizophrenia were associated with cannabis-induced experiences in a trans-ancestral sample ascertained for alcohol use disorders, the Collaborative Studies on the Genetics of Alcoholism (COGA; total analytic N = 4,447). We found that polygenic risk for schizophrenia was positively associated (betas = 0.19 - 0.24, SEs = 0.04 - 0.05, p-values = 1.7e-5 - 5.3e-9) with four of the five cannabis-induced experiences tested (paranoia, feeling depressed, disorganized thinking, and having decreased contact with family), even when controlling for cannabis use disorder diagnosis and use of other drugs (including hallucinogens). In contrast, the schizophrenia PRS was not significantly related to cannabis-induced hallucinations, although it was associated with visual hallucinations not specifically related to cannabis use (beta = 0.016, SE = 0.07, p = 0.02). In a smaller, independent replication sample, associations between the schizophrenia PRS and cannabis-induced experiences were smaller but in the expected direction and were not significantly different from those in the COGA sample. In contrast to prior studies, we did not find evidence of PRS-by-cannabis use interaction effects in our sample. Our findings suggest that polygenic liability for schizophrenia is associated with cannabis-induced psychosis-like experiences even accounting for other risk factors like heavy, early-onset cannabis use and other drug use; however, these results warrant further replication efforts in independent samples.