

Transancestral meta-analysis of alcohol dependence identifies novel genetic correlations

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Despite moderate heritability (~50%), relatively few individual loci have been identified for alcohol dependence (AD). We conducted a meta-analysis of genome-wide association studies (GWAS) on 14,904 individuals with AD and 37,944 controls from 19 case/control studies and 9 family-based studies. Studies were stratified by genetic ancestry to evaluate effects in European (EU; N=46,568) and African ancestry (AA; N=6,280). Loci in *ADH1B* reached genome-wide significance with strong evidence for independent effects in European and African populations. Underscoring the polygenic nature of AD, genomewide SNPs explained ~9% of the variance (i.e., heritability). There was significant genetic correlation with schizophrenia, ADHD, and depression, as well as use of cigarettes and cannabis. Unexpectedly, genetic correlations with alcohol consumption and scores on the Alcohol Use Disorders Identification Test (AUDIT) were low to absent. In addition to validating the importance of genetic commonality across AD and other psychiatric disorders, our study highlights that the genetic underpinnings of AD only partially overlap with those for alcohol consumption, and therefore the importance of research on the genetics of carefully assessed AD.