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Polygenic Predisposition for Educational Attainment Predicts Self and Partner Education Attainment and Alcohol Use Frequency

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Research finds assortative mating in educational attainment (EA), and that EA is positively associated with frequency of alcohol use. Polygenic scores for EA (EA PGS) also predict EA, as well as indices of psychopathology and substance use. Further, emerging research shows genetic concordance in couples' genetic predisposition for EA, and that individual's genetic predisposition can predict partner's EA, but has not investigated associations with self or partner's alcohol use frequency. In the current study, we hypothesize that individual (target) and partner EA PGS will predict self and partner EA and alcohol use frequency.

Participants were from a longitudinal study on target individual's substance use (n = 547). Target and partner self-reported on EA and alcohol use frequency at age 29 and were genotyped at a previous wave. EA PGS were based on a large educational attainment GWAS (Lee et al., 2018) and formed using PRS-CS. Target and Partner EA PGS were examined as correlated predictors of target and partner EA and alcohol use frequency, which were also correlated. Sensitivity analyses examined associations in European American and African American subgroups.

In the overall sample and in European Americans, target and partner EA PGS were associated with target and partner EA and alcohol use frequency. EA and alcohol use frequency were correlated but target and partner EA PGS were not correlated. Results imply that genetic predisposition for EA relate to partner's EA as well as self and partner's alcohol use frequency, which may be due to active or evocative gene-environment correlations.