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Genetic and cultural transmission of Alcohol Use Disorders in Swedish twin pedigrees.

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ABSTRACT:

Using Swedish nationwide registry data, we investigated the contribution of genetic and environmental risk factors to the etiology of alcohol use disorders by extended twin pedigree modeling. Alcohol use disorder (AUD) was defined using public inpatient, outpatient, prescription and criminal records. Three-generational pedigrees were selected for index individuals born between 1980-1990, obtained from the national twin and genealogical registers, whose parents were twins. Relatives of the twins included in the pedigrees were their parents, siblings, spouses and children. Genetic structural equation modeling was applied to the population-based data on AUD, using OpenMx, accounting for the effects of age. Analyses including up to 162,469 individuals in 18,971 pedigrees suggested that prevalence for AUD ranged from 5 to 12% in males and 2 to 5% in females. Results predicted substantial heritability (~50-60%) of which a portion upwards of 5% is due to the consequences of assortative mating. Contributions of shared environmental factors, which represent a mix of within and cross-generational effects, for AUD appeared to be moderate (~10-20%). Unique environment accounted for the remaining variance (~20-30%). Sex differences in the magnitude of the variance components suggested higher heritability in males and correspondingly higher shared environmental contributions in females. Using objective registry data, we found that AUD is highly heritable. Furthermore, shared environmental factors contributed significantly to the liability of AUD in both males and females.

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