



HHS Public Access

Author manuscript

Evid Based Ment Health. Author manuscript; available in PMC 2016 April 27.

Published in final edited form as:

Evid Based Ment Health. 2012 August ; 15(3): 57. doi:10.1136/ebmental-2012-100670.

Heritability of alcohol dependence is similar in women and men

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QUESTION

Question

How do genetic and environmental factors influence alcohol dependence in women?

People

13 595 female twins and 10 524 male twins aged 20–47 years, born in Sweden between 1959 and 1985. The study included monozygotic and same- and opposite-sex dizygotic twins, who were taking part in the Study of Twin Adults: Genes and Environment (STAGE). Participants were identified using the Swedish Twin Registry.

Setting

Sweden; 2005.

Risk factors

Genetic and environmental factors; gender; and childhood trauma (measured using the self-completed Life Stressor Checklist, LSC-R). A basic twin model was used to quantify genetic and environmental effects. Heritability (genetic effects) was compared in male and females. Childhood trauma was assessed in both sexes, but were analyzed and reported on in women.

Outcomes

Lifetime diagnosis of alcohol dependence, established using a standardised, computer-assisted Structured Clinical Interview for DSM-IV. Alcohol dependence was classified as late onset (type I) or early onset (type II) alcohol dependence, based on the revised Cloninger-Bohman criteria. (early onset is defined as onset of alcohol problems before age 25, and/or seeking treatment before age 30; plus two or more social complications of alcohol misuse, such as drunk driving or job loss).

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ABSTRACTED FROM

Magnusson A, Lundholm C, Göransson M, *et al*. Familial influence and childhood trauma in female alcoholism. *Psychol Med* 2012;42:381–9.

The table is available online only at <http://ebmh.bmj.com/content/early/recent>

Sources of funding: The Swedish Department of higher Education, the Swedish Research Council, AstraZeneca, the County of Stockholm and the National Institute on Alcohol Abuse and Alcoholism.

METHODS

Design

Retrospective cohort.

Follow-up period

20–47 years (assessed retrospectively).

MAIN RESULTS

Lifetime prevalence of alcohol dependence was 4.9% in women and 8.6% in men. Among women with alcohol dependence, 74.0% had late onset dependence and 26.0% had early onset dependence. Among men with alcohol dependence, 65.5% had late onset dependence and 34.5% had early onset dependence. Heritability for alcohol dependence was 55% overall, and it did not differ significantly between women and men. Heritability of early onset alcohol dependence was also similar in women and men. A significantly higher heritability was found for late onset alcohol dependence in women compared with men. Overall, there was a strong significant association between all forms of childhood trauma and alcohol dependence in women (please refer to table 1 online). Compared with late onset alcohol dependence, early onset alcohol dependence was more strongly associated with childhood physical trauma (OR 2.54, 95% CI 1.53 to 3.88), childhood sexual abuse (OR 2.29, 95% CI 1.38 to 3.79) and frequent emotional neglect as a child (OR 2.18, 95% CI 1.31 to 3.63).

CONCLUSIONS

Heritability of alcohol dependence is similar in women and men. In women, childhood trauma is associated with alcohol dependence, and is more strongly associated with early onset than late onset alcohol dependence.