The Relative Contribution of Genes and Environment to Alcohol Use in Adolescents and Young Adults

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Aim

• Assess the relative contribution of genetic and environmental influences to the variation in frequency of alcohol use in adolescents and young adults.

• Test whether this relative contribution of genes and environment is affected age and sex.

Method

Participants

• Data from a longitudinal survey study of the Netherlands Twin Register were used. The sample for these analyses consisted of 688 twin pairs of 13-15-years old, 744 twin pairs of 16-18-years old, 752 twin pairs of 19-21 years old and 569 twin pairs of 21-24-years old.

Measure

• Frequency of drinking was assessed by the question: 'How often do you drink alcohol?' Participants could respond from (1) 'I do not drink alcohol' to (8) 'daily'.

Results

Table 1. Twin Correlations for Frequency of Drinking

	13-15	16-18	19-21	22-24
MZ males	.80	.73	.63	.67
DZ males	.72	.48	.43	.53
MZ females	.83	.78	.64	.74
DZ females	.59	.51	.57	.25
DZ opposite sex	.44	.42	.37	.20

MZ, monozygotic; DZ dizygotic

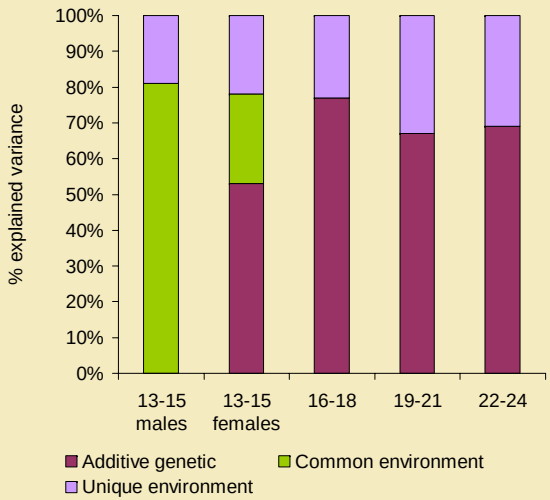

Figure 1. Parameter Estimates for Frequency of Drinking

Conclusion

• Parameter estimates were different for 13-15, 16-18, 19-21 and 22-24-year olds.

• Parameter estimates were equal for males and females, except among 13-15-year old adolescents.

• Additive genetic factors explained a relatively large part of the variance in frequency of drinking in adolescents and young adults, except among 13-15-year old males.

• In 13-15-year olds shared environmental factors explained 81% of the variance in frequency of drinking in males and 25% in females, while shared environment did not contribute to the variance of frequency of drinking in older adolescents and young adults.

• Unique environmental effects explained about 20% of the variance of frequency of drinking in adolescents in the age of 13-15-year and 16-18-years and about 30% in 19-21-year olds and 22-24-year olds.

• Results suggest that different common environmental factors affected 13-15-year old males and 13-15-year old females. Different genes were expressed in males and females.

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