Religious Contexts and Genetic Influences on Adolescent Drinking

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Abstract

This paper examines genetic and environmental determinants of adolescent alcohol consumption. Building upon a rich literature detailing environmental moderation of the effects of heritability and genetic traits, our analyses explore the moderating influence of several dimensions of religious context. Using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), we assess the moderating effects of family and school level religiosity on genetic risk factors for adolescents' alcohol use. Preliminary results suggest that religious contexts matter most for those with the highest risk factors for drinking behaviors and alcoholism.

Left: Children, 7-9 years old at First Communion, Parish of Langdon Hills
Right: Teenage binge drinking, The Atlantic

Background

- Use of alcohol influences numerous aspects of adolescent and young adult well-being - including development, morbidity, and mortality[1].
- Previous research, focusing primarily on individual religiosity, has found that religion moderates the influence of genetic factors on problem alcohol use in adolescents[2].
- Individual religiosity, though impactful in shaping behavior, does not fully capture the social or structural qualities of religious experience.

Data and Method

- Data in this study come from the restricted version of the National Longitudinal Study of Adolescent Health (Add Health).
- For genetic analyses, a white subsample and genetic principal components are utilized in order to reduce the potential of findings reflecting spurious components of population stratification[3].
- We estimate school fixed effects models predicting three distinct aspects of drinking behaviors: binge drinking, having ever consumed alcohol, and an average number of drinks consumed per week.
- Religious context is measured at two levels: maternal religiosity and peer maternal religiosity.

Results

- Religious contexts appear to reduce certain types of drinking behaviors.
- This effect appears to matter more for those with higher genetic risk for problem drinking.
- This does not extend across all measures of drinking behaviors, such as having ever tried alcohol.

Table 2: School Fixed Effects Models Predicting Adolescent Binge Drinking

Sample	Model 1 White	Model 2 White	Model 3 White - High PGS	Model 4 White - Low PGS
PGS for Alcohol (Std)	-	0.012*	-	-
	-	(0.007)	-	-
Maternal Religiosity	-0.058***	-0.057***	-0.070***	-0.045***
	(0.011)	(0.011)	(0.016)	(0.017)
Peer Maternal Religiosity	-0.018	-0.017	-0.033*	-0.004
Constant	-0.682***	-0.685***	-0.925***	-0.566***
	(0.134)	(0.132)	(0.211)	(0.214)
Observations	5,560	5,560	2,738	2,822
R-squared	0.140	0.145	0.170	0.179

Robust standard errors in parentheses. Controls for age, genetic principal components, grade and sex included in the models but not presented in order to preserve space.

*** p<0.01, ** p<0.05, * p<0.1

Table 4: School Fixed Effects Models Predicting Adolescents' Ever Having Tried Alcohol - Stratified by Parental History of Alcoholism

Sample	Model 1 Full	Model 2 Alcoholic	Model 3 Nonalcoholic
Maternal Religiosity	-0.050***	-0.061***	-0.057***
	(0.009)	(0.022)	(0.009)
Peer Maternal Religiosity	-0.006	-0.043**	0.001
	(0.006)	(0.017)	(0.009)
Constant	0.044	0.071	0.076
	(0.074)	(0.175)	(0.088)
Observations	19,921	2,592	13,954
R-squared	0.107	0.169	0.112

Robust standard errors in parentheses. Controls for race, ethnicity, age, grade and sex included in the models but not presented here in order to preserve space.
*** p<0.01, ** p<0.05, * p<0.1

Discussion

- These analyses suggest that religious contexts may matter differently for those with greater genetic susceptibility for alcohol misuse.
- Evidence of two distinct levels of contextual moderation supports the recommendation of Boardman and colleagues[4] to broaden the conceptualization of environment to include multiple domains of social context.
- Proximate social environments (family) appear to exhibit stronger controls of genetic predisposition towards problem drinking behaviors than more distal social environments (classmates).

References

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