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Associations Among Adolescent Conduct Problems and Perceived Peer and Parental Acceptance of Adolescent Alcohol Use

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ABSTRACT

- Adolescent deviance is likely to be influenced by both genetic and environmental factors
- The present analyses examine potential genetic and environmental associations between adolescent conduct problems and perceptions of peer and parental acceptance of adolescent alcohol use
- Intrapair correlations and quantitative genetic analyses indicated significant familiality, with substantial shared environmental influences on all three measures and modest genetic influences on conduct problems and perceived peer acceptance of adolescent alcohol use
- Whereas the genetic correlations between measures were small (~0.10-0.35), the shared environmental correlations were substantial (~0.50-0.85)
- These analyses indicate that there are considerable familial influences on both conduct problems and perceptions of others' acceptance of adolescent alcohol use, and that the majority of the overlap is attributable to shared environmental influences

INTRODUCTION

- Family and peers have typically been viewed as the two primary influences on adolescent development, including deviant behaviors such as conduct problems and alcohol use
- Although deviant behaviors are likely to be influenced by both genetic and environmental factors, the extent to which the influences on various deviant behaviors overlap is relatively unexplored
- The present analyses examine:
  - Genetic and environmental contributions to adolescent conduct problems and to adolescents' perceptions of peer and parental acceptance of adolescent alcohol use
  - The extent to which the genetic and environmental influences on the measures overlap

RESEARCH QUESTIONS

- What are the relative contributions of genetic and environmental factors to adolescents' self-reports of:
    - conduct problems
    - peer acceptance of adolescent alcohol use
    - parental acceptance of adolescent alcohol use

- Do the same genetic and environmental factors contribute to adolescent conduct problems, and to adolescent perceptions of 1) peer acceptance of, and 2) parental acceptance of adolescent alcohol use?

SAMPLE

- Participants in the Missouri Adolescent Female Twin Study (MOAFTS), a population-based study of adolescent female twins born in Missouri to Missouri-resident parents
- 1285 Missouri-born female twin pairs (2570 individuals)

  MZ = 738 DZ = 547

- All respondents participated in a telephone diagnostic interview and completed a one-year follow-up questionnaire
- Mean age = 16.9 years at follow-up (range: 13-22)

MEASURES

Conduct Problems

- Were assessed in the initial telephone interview using an 18-item quantitative scale, with more serious behaviors weighted more heavily
- Raw scores ranged from 0-40, with a mean of 3.63
- Raw scores were used to create a 4-level variable:

	%	n
0 = no conduct problems	39%	992
1 = a raw score or 1-2	16%	417
2 = a raw score of 3-6	21%	540
3 = a raw score > 6	16%	412
. = missing	8%	209

Perceived Peer Acceptance of Adolescent Alcohol Use

- Was assessed in the self-report follow-up questionnaire using 3 questions:

  "How do you think your close friends feel (or would feel) about you…"

  - trying alcohol once or twice
  - having a drink or two every day
  - having 4-5 drinks once or twice every weekend
- Responses to each question were coded as:
  - 0 = strongly disapprove
  - 1 = disapprove
  - 2 = don't disapprove
- Responses were summed to yield a 7-level variable:

0	14%	(n=368)	4	15%	(n=387)
1	11%	(n=273)	5	17%	(n=435)
2	8%	(n=211)	6	18%	(n=451)
3	15%	(n=385)	missing	2%	(n=60)

Perceived Parental Acceptance of Adolescent Alcohol Use

- Was assessed in the self-report follow-up questionnaire through a single question:

  "How do you think your parents feel about someone your age drinking alcohol?"

	%	n
0 = strongly disapprove	48%	1231
1 = disapprove	32%	824
2 = don't disapprove	18%	473
. = missing	2%	42

ANALYSES

- Preliminary analyses: intrapair correlations
- Quantitative genetic analyses were used to assess the:
  - Significance of familial influences
  - Genetic and environmental correlations between measures

RESULTS 1

Intrapair Correlations

	MZ	DZ
Conduct problems	0.68*	0.55*
Perceived Peer Alcohol Accept.	0.54*	0.43*
Perceived Parental Alcohol Accept.	0.43*	0.47*

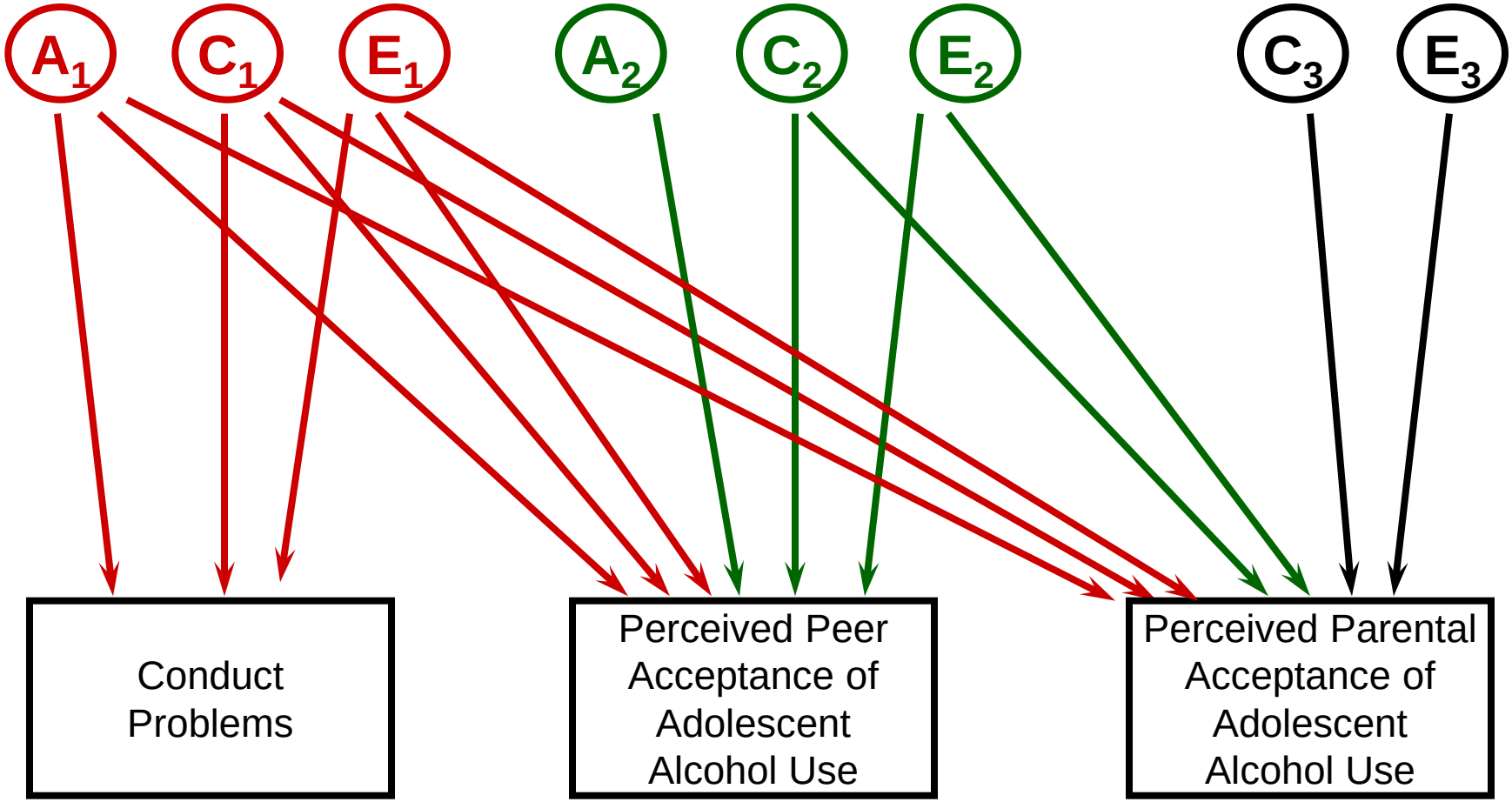
- The substantial and significant intrapair correlations suggest a strong familial component:
  - There is evidence of substantial shared environmental influence for all measures, since the DZ correlations are more than .5 the MZ correlations
  - There is some evidence of genetic influence for conduct problems and perceived peer acceptance of adolescent alcohol use, since the MZ correlations are somewhat larger than the DZ correlations
- Structural equation modeling is needed to test the significance of the genetic and shared environmental components

RESULTS 2

Quantitative Genetic Analyses

- A structural equation model that included genetic and environmental influences represented a significant improvement over a model containing only nonshared environmental influences (see Figure 1 for path diagram and Table 1 for path loadings)
  - Chi-square change = 993.947 with 10 degrees of freedom
- Further analyses confirmed that:
  - Shared environmental influences were significant for all three measures
  - Genetic influences were significant for conduct problems and perceived peer acceptance of adolescent alcohol use, but not for perceived parental acceptance of adolescent alcohol use
- Proportions of variance are shown in Figure 2

FIGURE 1



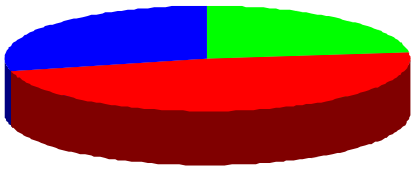
A = additive genetic C = shared environmental E = nonshared environmental

FIGURE 2

Conduct Problems

A =.29*
(.14 - .34)

E =.23*
(.19 - .27)



C =.48*
(.34 - .62)

Perceptions of Peers' Acceptance of Alcohol Use

A =.27*
(.14 - .39)

E =.42*
(.38 - .48)

C =.31*
(.21 - .44)

Perceptions of Parents' Acceptance of Alcohol Use

A =.01 (n.s.)

E=.43*
(.38 - .48)

C=.56*
(.48 - .61)

A = Additive Genetic
C = Shared Environmental
E= Nonshared Environmental

* indicates p < .05

TABLE 1

Full Model Path Loadings

	A1	C1	E1	A2	C2	E2	A3	C3	E3
Conduct problems	.54*	.69*	.48*						
Perc. Peer Accept. of Adol. Alcohol Use	.11	.38*	.08*	.51*	.40*	.64*			
Perc. Parental Accept. of Adol. Alcohol Use	.11	.39*	.06	---	.50*	.21*	---	.40*	.62*

A = additive genetic C = shared environmental E = nonshared environmental

* indicates $p < .05$

RESULTS 3

Correlations between Measures

- The genetic correlations were small (range: 0.10-0.35) and could be dropped from the model without a significant decrease in fit, indicating that the genetic influences were specific to each measure
- The shared environmental correlations were substantial and significant (see Table 2), indicating that many of the shared environmental influences on the three measures overlap
- Although two of the nonshared environmental correlations were statistically significant (see Table 2), they were modest, indicating that most of the nonshared environmental influences were specific to each measure

TABLE 2

Correlations between Measures

	SHARED ENVIRONMENTAL		NONSHARED ENVIRONMENTAL	
	Conduct Problems	Perc. Peer Accept. of Adol. Alcohol Use	Conduct Problems	Perc. Peer Accept. of Adol. Alcohol Use
Perc. Peer Accept. of Adol. Alcohol Use	0.69* (0.51 – 0.93)	---	0.13* (0.02 – 0.23)	---
Perc. Parental Accept. of Adol. Alcohol Use	0.52* (0.34 – 0.73)	0.84* (0.70 – 1.00)	0.09	0.34* (0.26 – 0.41)

* indicates $p < .05$

CONCLUSIONS

- These analyses provide support for a strong familial contribution to adolescent conduct problems and to adolescent perceptions of peer and parental acceptance of adolescent alcohol use
  - Shared environmental influences contribute to all three measures, accounting for 31-56% of the variance
  - Genetic influences also contribute significantly to conduct problems and to perceived peer acceptance of adolescent alcohol use, accounting for 29% and 27% of the variance respectively
- Although there was evidence of substantial overlap in the shared environmental influences on all three measures (the correlations ranged from 0.52-0.84), there was little evidence of overlap in the genetic influences