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Intermediary Mechanisms in the Transmission of Alcohol Use Behaviors from Parents to Adolescents: Examining the Role of Parents’ Socialization Practices

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Adolescence is a critical period with regard to the initiation and early escalation of alcohol use (Blum et al., 2000; Johnston, O’Malley, & Bachman, 1998).

Research on familial risk and protective factors provides independent support for multiple domains of parental influence on adolescent drinking; including parents’ own drinking behaviors (Johnson & Johnson, 2001; Lieb et al., 2002), as well as the practices they employ to socialize their children (Ary et al., 1999; Fletcher & Jefferies, 1999; Nash, McQueen, & Bray, 2005; Simons-Morton & Chen, 2005; Herman, Dornbusch, Herron, & Herting, 1997).

Whether and how these distinct associations are related to one another is still not entirely clear.
OBJECTIVES

- To test the nature of associations between:
  - (a) parents’ frequencies of alcohol use and intoxication
  - (b) adolescents’ perceptions distinct parenting behaviors
  - (c) adolescents’ frequencies of alcohol use and intoxication

- To assess whether parental alcohol use behaviors influence adolescent alcohol use directly, or if they operate through indirect associations with parenting (i.e., globally and/or through specific dimensions of parenting)
THEORETICAL MODEL

Parental Alcohol Use

- $a_1$
- $a_2$
- $a_3$
- $a_4$
- $a_5$
- $a_6$

Controls (zygosity, sex)

Adolescent Alcohol Use

- $b_1$
- $b_2$
- $b_3$
- $b_4$
- $b_5$
- $b_6$

Factors:
- warmth
- relational tension
- shared activities
- autonomy granting
- discipline
- monitoring

$c'$
METHODS

Sample
- 4731 Finnish adolescents drawn from a population-based twin study of health related behaviors and correlated risk factors (i.e., FinnTwin12; Kaprio, Pulkkinen, & Rose, 2002)

Procedure
- Self-report questionnaires were completed by adolescents and their parents when the adolescents were 12 years old. Adolescents completed follow-up questionnaires at 14 and 17 years of age.
METHODS

Constructs Measured
- Maternal and Paternal baseline frequencies of alcohol use and intoxication
- Adolescent frequencies of alcohol use and intoxication at ages 14 and 17
- Adolescents’ perceptions of parenting:
  - Warmth
  - Relational Tension
  - Shared Activities
  - Autonomy Granting
  - Discipline
  - Monitoring

Analytic Plan
- Multiple Mediation Analysis carried out in Mplus version 4.1 (Muthén & Muthén, 1998-2006)
RESULTS

- Across models, parents’ alcohol use behaviors consistently accounted for a significant variation in adolescents’ alcohol use behaviors, and appeared to account for increasingly more over time.

- Parental alcohol use behaviors had significant direct effects on adolescents’ alcohol use behaviors at ages 14, and were even stronger at age 17 (i.e., $c'$ paths increased with age).

- Increases in parents’ drinking behaviors were associated with (i.e., $a$ paths):
  - ↑ discipline, ↓ monitoring & shared activities – for both moms’ and dads’ use
  - ↑ relational tension – for moms’ use only
  - Little evidence of links with warmth and autonomy granting

- Increases in adolescents’ drinking behaviors were associated with (i.e., $b$ paths):
  - ↓ monitoring – at ages 14 and 17
  - ↑ discipline – only at ages 17
  - ↓ warmth & shared activities – only for intoxication at age 14
  - ↑ relational tension & autonomy – only for intoxication at age 17
RESULTS

- When examined collectively, multivariate path analyses indicated that associations between parents’ and adolescents’ alcohol-related behaviors were mediated by adolescents’ perceptions of the parenting that they received, though not in full.

- Parental monitoring and discipline had unique ability to mediate these associations, over and above the collective contributions of the other parenting behaviors.
Mediation of Maternal Alcohol Use

Model $R^2 = .051$
Total Effect: .052, $z = 8.25, p < .001$
Total Indirect Effect: .005, $z = 3.44, p < .001$
Proportion of Effect Mediated = .096

Model $R^2 = .057$
Total Effect: .037, $z = 7.85, p < .001$
Total Indirect Effect: .003, $z = 2.85, p < .01$
Proportion of Effect Mediated = .081

Model $R^2 = .085$
Total Effect: .109, $z = 12.61, p < .001$
Total Indirect Effect: .004, $z = 2.43, p < .05$
Proportion of Effect Mediated = .037

Model $R^2 = .062$
Total Effect: .075, $z = 9.82, p < .001$
Total Indirect Effect: .004, $z = 2.86, p < .01$
Proportion of Effect Mediated = .053
Mediation of Maternal Intoxication

Maternal Intoxication

**Age 14 Alcohol Use**

**Model $R^2 = .049$**

Total Effect: .084, $z = 6.68$, $p < .001$

Total Indirect Effect: .012, $z = 4.76$, $p < .001$

Proportion of Effect Mediated = .143

**Age 17 Alcohol Use**

**Model $R^2 = .048$**

Total Effect: .122, $z = 8.14$, $p < .001$

Total Indirect Effect: .01, $z = 3.89$, $p < .001$

Proportion of Effect Mediated = .083

Maternal Intoxication

**Age 14 Intoxication**

**Model $R^2 = .065$**

Total Effect: .077, $z = 7.61$, $p < .001$

Total Indirect Effect: .008, $z = 4.18$, $p < .001$

Proportion of Effect Mediated = .104

**Age 17 Intoxication**

**Model $R^2 = .06$**

Total Effect: .124, $z = 8.82$, $p < .001$

Total Indirect Effect: .009, $z = 3.96$, $p < .001$

Proportion of Effect Mediated = .073
Mediation of Paternal Alcohol Use

Model $R^2 = .049$
Total Effect: .044, $z = 7.24, p < .001$
Total Indirect Effect: .006, $z = 4.19, p < .001$
Proportion of Effect Mediated = .136

Model $R^2 = .054$
Total Effect: .029, $z = 6.23, p < .001$
Total Indirect Effect: .004, $z = 4.09, p < .001$
Proportion of Effect Mediated = .138

Model $R^2 = .09$
Total Effect: .11, $z = 11.82, p < .001$
Total Indirect Effect: .003, $z = 2.20, p < .05$
Proportion of Effect Mediated = .027

Model $R^2 = .076$
Total Effect: .084, $z = 10.69, p < .001$
Total Indirect Effect: .003, $z = 2.33, p < .05$
Proportion of Effect Mediated = .036
Mediation of Paternal Intoxication

**Model \( R^2 = .047 \)**
- Total Effect: .05, \( z = 6.03, p \leq .001 \)
- Total Indirect Effect: .009, \( z = 4.82, p \leq .001 \)
- Proportion of Effect Mediated = .18

**Model \( R^2 = .061 \)**
- Total Effect: .046, \( z = 7.13, p \leq .001 \)
- Total Indirect Effect: .006, \( z = 4.48, p \leq .001 \)
- Proportion of Effect Mediated = .13

**Model \( R^2 = .061 \)**
- Total Effect: .10, \( z = 9.11, p \leq .001 \)
- Total Indirect Effect: .006, \( z = 3.37, p \leq .001 \)
- Proportion of Effect Mediated = .06

**Model \( R^2 = .077 \)**
- Total Effect: .103, \( z = 10.79, p \leq .001 \)
- Total Indirect Effect: .005, \( z = 3.35, p \leq .001 \)
- Proportion of Effect Mediated = .049
## Significant Partial Mediation Effects

### Effect coefficients and test-statistics for parenting variables demonstrating significant partial mediation

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Outcome</th>
<th>Monitoring</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(B (a^*b))</td>
<td>(SE)</td>
</tr>
<tr>
<td>Maternal Use</td>
<td>Age 14 Use</td>
<td>.003</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Age 14 Intoxication</td>
<td>.002</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Age 17 Use</td>
<td>.002</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Age 17 Intoxication</td>
<td>.002</td>
<td>.001</td>
</tr>
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<td>Maternal Intoxication</td>
<td>Age 14 Use</td>
<td>.004</td>
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<td>.001</td>
</tr>
<tr>
<td>Paternal Use</td>
<td>Age 14 Use</td>
<td>.009</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>Age 14 Intoxication</td>
<td>.007</td>
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<td>.004</td>
<td>.001</td>
</tr>
</tbody>
</table>

Critical ratios (i.e., \(Z\)-scores) of 1.96, 2.58, and 3.29 correspond to \(p\)-values of .05, .01, and .001, respectively.

*Note:* standardized effect coefficients and associated standard errors are rounded to the nearest thousandth.
CONCLUSIONS
FUTURE DIRECTIONS

Future research should focus on disaggregating the genetic and environmental components of the pathways through which parents’ drinking influences adolescents’ alcohol use behaviors.
ACKNOWLEDGEMENTS

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