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A Latent Growth Curve Analysis of Alcohol-Use Specific Parenting and Adolescent Alcohol Use

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Abstract

This study investigates how changes in alcohol use-specific parenting were associated with adolescent drinking trajectories. Three waves of data from a longitudinal study investigating adolescent substance use were used. The community sample (N=378) was aged 10–13 at the first wave of assessment. Our findings show that over time, parents are less likely to discipline their adolescents' drinking, more likely to grant their adolescent permission to drink, and less likely to communicate the consequences of alcohol use. Moreover, these changes are associated with escalation in adolescent alcohol use. Parental efficacy at preventing alcohol use declined, but did not relate to changes in adolescent drinking.

Keywords

Alcohol use; early adolescence; alcohol-use specific parenting

1. Introduction

Although general parenting practices (e.g., low warmth/responsiveness, inconsistent discipline) are well-established correlates of adolescent alcohol use and are prominent in socialization theories of adolescent alcohol use (Barnes, Reifman, Farrell, & Dintcheff, 2000; Chassin, Pitts, & Prost, 2002; Hawkins, Catalano, & Miller, 1992), much less research has examined alcohol use-specific parenting. Alcohol-use specific parenting refers to practices specifically aimed at deterring children's drinking, such as directly telling a child not to drink alcohol (Foley, Altman, Durant, & Wolfson, 2004; Yu, 2003). There is evidence suggesting that negative parental attitudes about drinking as reflected in disapproval of

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Contributors

Author A conducted literature searches, conducted statistical analyses, co-wrote the manuscript, and developed the manuscript's tables. Author B designed the study, wrote the protocol, assisted in conducting statistical analyses, and co-wrote the manuscript.

Conflicts of Interest

There are no conflicts of interest by any author.

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alcohol, rules that prohibit drinking in the home, and perceived consequences for getting caught drinking are associated with decreased risk for adolescent alcohol use (Foley et al., 2004; Martino, Ellickson, & McCaffrey, 2009; Kelly et al., 2011; Yu, 2003). Additionally, there is evidence that low levels of adolescent-perceived parental legitimacy to regulate adolescents' alcohol use predict drinking onset (Handley & Chassin, 2013). Although parental efficacy in preventing substance use and communication of the health risks have been linked to lower risk for cigarette use (Chassin, Presson, Todd, Rose, & Sherman, 1998; Henriksen & Jackson 1998; Jackson & Henriksen 1997; Kodl & Mermelstein, 2004), to our knowledge, these aspects of parenting have not been examined with respect to adolescent drinking.

An important limitation of the literature is that studies have rarely examined how alcohol specific parenting might change as adolescents get older using a longitudinal design. There is evidence that parents become more permissive regarding adolescent alcohol use as youth age. For example, Kelly et al. (2011) found that parental disapproval of alcohol declined across time and that more rapid declines predicted adolescent alcohol use. Additionally, Prins, Donovan, and Molina (2011) found parents to become more accepting of sipping alcohol as their children matured into adolescence. An increase in parental permissiveness suggests that alcohol use-specific parenting might change with age, and that these changes might be associated with increases in adolescent alcohol use. The goal of this study was to test developmental changes in alcohol-specific parenting using a longitudinal design and examine if these changes were associated with trajectories of alcohol use.

Four domains of alcohol-specific parenting were considered, including parental disciplining of adolescents' drinking, parental efficacy about preventing adolescent drinking, drinking with parental permission (reflecting parental attitudes about alcohol), and parental communication of alcohol-related consequences. We hypothesized that parents would become less likely to discipline adolescents' drinking and less likely to communicate the health risk of drinking as youth age, and that these declines would be associated with increases in alcohol use. We also hypothesized that increases in drinking with parental permission across time, and that more rapid increases in drinking with parental permission would be associated with increases in alcohol use. Finally, we hypothesized declines in perceived parental efficacy in preventing adolescent drinking, and that these declines would be associated with increases in alcohol use. This hypothesis was based on the premise that as adolescents mature, they spend increasingly more time with peers, engage in more unsupervised activities, disclose less to their parents, and establish independence (Larson & Richards, 1991). This general developmental shift toward independence was hypothesized to translate into a reduction in parental efficacy.

2. Methods

2.1 Participants

The community sample of 378 families from Erie County, NY was recruited via Random Digit Dialing and Computer-Assisted Telephone Interviewing. Inclusion criteria included an adolescent between the ages of 11 and 12 and one caregiver willing to participate. Youth were excluded if they had mental disabilities (e.g., mental retardation, autism) or language

barriers (did not speak English) that would preclude their ability to complete the measures. Given that some adolescents had a birthday between the initial phone contact and date of first assessment a small number of adolescents were 13 at the first assessment. The adolescents (52% girls) were 10–13 years old ($M = 11.1$, $SD = .85$) at Wave 1. The majority was White/non-Hispanic (75%). The majority of participants lived in households headed by two caregivers (72%) and over half of the parents had a college education (58%). The median family income was \$60,000. Additional description of recruitment and the sample are reported in Colder et al. (2012).

2.2 Procedures

Three annual interviews were conducted in university-based research offices. Most families completed the second and third waves of assessment $\pm$ two months of the one-year anniversary of the prior assessment. The Wave 1 to Wave 3 attrition rate was only 7%. No demographic differences between participants with and without missing data were detected, nor were there differences on Wave 1 adolescent alcohol use (Colder et al., 2012). Thus, missing data likely did not affect study findings.

2.3 Measures

As expected given the age of our sample, alcohol use was not normally distributed. Accordingly, a three level ordinal variable (0 = No drinks, 1 = 1–3 drinks, and 2 = 3+ drinks in the past year) was created based on adolescent self-reports of quantity and frequency of use. A cut-off of 3+ drinks was chosen for our third category as it provided a reasonable balance between capturing variability of early stage drinking, but also provided adequate cell sizes. Rates of abstaining were 78.04%, 73.07%, and 61.58%, at Times 1, 2, and 3, respectively. At Times 1, 2, and 3, 20.63%, 24.07%, and 31.36% of the sample reported having 1–3 drinks in the past year, respectively, whereas 1.32%, 2.87%, and 7.06% reported having 3+ drinks, respectively. Adolescents also reported whether they drank alcohol with parental permission in the past year (Yes/No) (Elliott & Huizinga, 1983). At Times 1, 2, and 3, 42%, 44%, and 53% of adolescents, respectively, reported drinking alcohol with parents' permission.

Items assessing parental disciplining of adolescents' drinking, parental efficacy about preventing adolescent drinking, and parental communication of alcohol-related consequences were adapted from Kodl & Mermelstein's (2004) measure of cigarette use-specific parenting and modified so the content was alcohol-specific. Using a combination of principal components analyses and confirmatory factor analysis suggested that a three-factor model provided a good representation of the items and a good fit to the data. Moreover, the factor structure was invariant across the three assessments. These analyses are detailed in the Results section. Three parent-report items assessed parental disciplining of adolescents' drinking (e.g., grounding him/her), three parent-report items assessed parental efficacy about preventing alcohol use (i.e., how confident parents feel at exerting control over adolescents' behavior, such as keeping adolescents away from peers who drink alcohol), and eight adolescent-report items assessed parental communication of alcohol-related consequences (e.g., "Drinking alcohol can give you a hangover."). Parents responded to items using a four-point response scale (1 = "Not at all likely," 4 = "Extremely likely."). Items were averaged to

form scale scores, and Cronbach's alphas ranged from .71 to .90. Correlations among the parenting variables ranged from -0.14 to $.24$ at Wave 1, -0.18 to $.29$ at Wave 2, and -0.15 to 0.26 at Wave 3.

3. Results

3.1 Factor Analyses of Parenting Measures

First, we used parallel analysis and principal components analysis at each wave of assessment to determine the number of factors for each domain of alcohol specific parenting. This yielded similar solutions across each wave, including two factors for parental reactions to adolescent alcohol use, two factors for parental efficacy, and one factor for communication of risk of drinking.

After completing exploratory factor analysis at each wave of assessment, confirmatory factor analysis was used to test the equivalence of the factor structure across the waves. Latent variables were specified at each time point as suggested by the exploratory factor analysis and the factors were allowed to freely covary. Autocorrelated error covariances were included and nested model chi-square tests were used to evaluate the equivalence of the factor loadings across time. We ran separate CFAs for the parental reactions to adolescent drinking (parental discipline and parental communication of alcohol-related negative consequences), parental efficacy (to prevent their child from using alcohol and to talk to their children about drinking alcohol), and communicated the health risks of drinking.

The initial CFA for reactions to adolescents' drinking included 6 factors (2 latent variables at each wave of assessment, disciplining and talking about alcohol-related negative consequences), and provide a poor fit to the data (χ^2 : 541.739, $df = 111$, $p = 0.00$; CFI = .97; RMSEA = .10). The second factor, parental likelihood of talking to adolescents about drinking (comprised of three items) contained an item with an autocorrelation greater than 1.00 ("Talk with him/her about how his/her drinking alcohol makes you feel."), and so this factor was eliminated and the model re-estimated. The revised model fit the data well (χ^2 : 14.33, $df = 14$, $p = 0.43$; CFI = 1.00; RMSEA = .008). Next, the factor loadings were constrained to be equal, and the nested chi-square test suggested a nonsignificant change in the model fit (χ^2 : 9.21, $df = 8$, $p = 0.33$). Thus the factor structure for likelihood to discipline adolescents' drinking was the same across time. These items were averaged to form scale scores for subsequent analysis.

The CFA for alcohol efficacy included 6 factors (2 latent variables at each wave of assessment, including efficacy in preventing drinking and efficacy in talking about drinking) provided a poor fit to the data (χ^2 : 76.967, $df = 60$, $p = 0.04$; CFI = .99, RMSEA = .03). The second factor (comprised of two items) contained an item with an autocorrelation greater than 1.00 ("You can talk to your child about drinking alcohol."), and so this factor was eliminated. The model was re-estimated, and it provided an adequate fit to the data (χ^2 : 36.50, $df = 15$, $p = 0.0015$; CFI = .99, RMSEA = .06). The factor loadings were then constrained to be equal and the nested chi-square test suggested a non-significant change in the model fit (χ^2 : 6.250, $df = 3$, $p = 0.10$), indicating the factor structure for alcohol efficacy

was equivalent across time. The three items were averaged to form scale score representing parental efficacy in preventing adolescent alcohol use.

The CFA for parent-conveyed risks of alcohol use included 3 factors (1 latent variable at each wave of assessment), and the model with freely estimated factor loadings suggested an adequate fit to the data (χ^2 : 886.731, $df = 249$, $p = 0.00$; CFI = .94, RMSEA = .08). The factor loadings were then constrained to be equal, and the nested chi-square test suggested the factor structure for parent-delivered risks of alcohol use was equivalent across time (χ^2 : 17.92, $df = 14$, $p = 0.21$). Items were averaged to form a scale score at each wave.

3.2 Univariate Growth Models

Linear growth models with time coded 0, 1, and 2 were estimated in Mplus version 6.1 (Muthén & Muthén, 2010). Maximum likelihood estimation was used for continuous outcomes, and weighted least squares estimation was used for the ordinal alcohol outcome. Results of univariate growth models are reported in Table 1. There was an increase in alcohol use with statistically significant individual variability in both growth factors. With respect to parenting, the average parent at Time 1 reported being “somewhat likely” to discipline adolescents’ drinking, and there was a decline over time with significant individual variability. The average parent also started out feeling “somewhat” efficacious about preventing adolescent drinking at Time 1 (mean of the efficacy intercept growth factor), and efficacy declined over time with no significant individual variability. Additionally, the probability of drinking with parental permission was low at Time 1 (mean of intercept growth factor) and increased over time, though there was no individual variability in the slope factor. Finally, at Time 1, the average parent “often” delivered messages conveying consequences of drinking alcohol (mean of intercept growth factor), and communication of alcohol-related consequences declined over time with significant individual variability in rates change.

We also considered whether growth in our alcohol specific parenting variables differed across older and younger adolescents in our sample. To do this, the sample was split into two groups based on age (i.e., 10–11 year olds, $N=113$; and 12–13 year olds, $N=265$), and the growth models were rerun for multiple groups. Nested model chi-square tests were used to examine whether the growth means, variances, and covariances were equal across the younger and older groups. With one exception, chi-square difference tests suggested no difference in variances and covariances of the alcohol use-specific parenting variables or the growth factor means (all $ps > .10$). The exception was that the intercept growth factor mean for the parental efficacy model was different across groups ($\chi^2 = 7.16$, $p = 0.03$), such that levels of parental efficacy at time 1 were higher for the younger compared to the older group. Given the lack of age differences, we conducted our parallel process growth models using our full sample of adolescents.

3.3 Parallel Process Models

We estimated parallel process growth models to examine associations between parenting variables and alcohol use. A separate model was run for each parenting variable because estimating all growth factors would have yielded complex models that were not tenable

given our sample size. Furthermore, the correlations among observed parenting variables were modest (see methods section), suggesting little overlap between our parenting variables.

Covariances from the parallel process growth models are presented in Table 2. The slope of alcohol use was associated with the slope of parental disciplining of adolescents' drinking, drinking with parental permission, and parental communication of alcohol-related consequences. Increases in adolescent drinking were associated with less rapid declines in parental disciplining of adolescents' drinking and more rapid increases in drinking with parental permission. As adolescent drinking increased, parents were less likely to discipline adolescents for alcohol use, and more likely to give permission to drink. Increases in adolescent drinking were associated with more rapid declines in parental communication of alcohol-related consequences. That is, as youth drinking increased, parents were less likely to discuss the negative consequences of drinking. The intercept of alcohol use was associated with the parental communication of alcohol-related consequences and drinking with parental permission intercepts. At Time 1, low likelihood of drinking was related to frequent parental communication of alcohol-related consequences and low likelihood of drinking with parental permission.

4. Discussion

The purpose of the current study was to examine developmental changes in four domains of alcohol-specific parenting and their relation to trajectories of adolescent alcohol use. Results showed that as adolescents aged, parents became less restrictive in their alcohol-specific parenting. These findings parallel the trend of general parenting where parents monitor their adolescents' activities to a lesser extent and grant their adolescents greater levels of autonomy over time (Metzger, Ice, & Cottrell, 2012; Bumpus, Crouter, & McHale, 2001). While encouragement of individuation and independence has been demonstrated to be adaptive to adolescent adjustment (Zimmer-Gembeck & Collins, 2003), there may be unfavorable consequences associated with less restrictiveness with respect to alcohol use. The potential influences of substance use-specific parenting on adolescent attitudes, beliefs, and subsequent behavior are considered below.

Drinking with parental permission increased and parents reported that they were less likely to discipline adolescents' drinking over time. Moreover, drinking with parental permission was associated with higher likelihood of alcohol use at the first assessment as well as with more rapid increases in drinking. Similarly, more rapid declines in parental disciplining of adolescents' drinking were associated with escalation of adolescent drinking. One interpretation of these findings is that parental permission to drink alcohol and less willingness to discipline adolescents' drinking likely convey to adolescents that drinking alcohol is acceptable, and this may change adolescents' expected intrinsic and extrinsic consequences of alcohol use. These findings are consistent with evidence that fewer household restrictions on alcohol use, less parental disapproval of alcohol use, and less parental discipline around drinking increase risk for adolescent alcohol use (Barnes & Welte, 1986; Foley et al., 2004; Yu, 2003).

Parental communication of alcohol-related consequences may be the most direct parenting strategy to foster negative alcohol-related attitudes that deter adolescents from drinking. Adolescents reported that frequency of risk messages from parents declined over time. Moreover, frequent messages about the risks of drinking were associated a lower likelihood of drinking at the initial assessment, and less decline in risk messaging was associated with slower increase in drinking. In short, it is possible that perceiving parental communication of alcohol-related consequences deterred early adolescent drinking.

With age, adolescents transact in more social contexts outside of the family (Brown, Dolcini, & Leventhal, 1997) and the increasingly complex web of social influences might translate into parents feeling less efficacious in preventing their teen from drinking. Although, perceived parental efficacy about preventing adolescent drinking declined over time, this parenting variable was not related to adolescent alcohol use. Efficacy may be a relatively weak distal influence that operates through other parenting dimensions, and thus was not associated with adolescent alcohol use.

4.1 Limitations and Conclusions

Although our study provided an examination of developmental changes in alcohol-specific parenting, some limitations should be noted. First, our correlational study precludes establishing causal relationships, and we were unable to ascertain whether changes in alcohol-use specific parenting led to changes in adolescent use or vice versa. It has been previously demonstrated that changes in adolescent alcohol use cause changes in parenting (Stice & Barrera, 1995), and this may also be true for alcohol-specific parenting. Second, although our study extended prior work by using a longitudinal design, our design included three waves of data, which is the minimum to determine growth. It will be important to extend our work to additional measures that extend from early to late adolescence. Third, there is evidence that the influence of parenting may differ across ethnic groups (Nowlin & Colder, 2007). We did not have adequate group sizes to consider potential ethnic/racial group differences, but this will be an important direction for future research. Fourth, although we examined alcohol use with parental permission, parental provision of alcohol to adolescents was not assessed. Parental provision of alcohol has been shown to be associated with adolescent drinking (Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007), and it will be important to add this variable to studies of alcohol-specific parenting.

In conclusion, our findings demonstrate associations between adolescent alcohol use and alcohol-use specific parenting practices. Though we cannot ascertain causality, one possibility is that adolescents whose parents become more lax at working to prevent adolescent alcohol use are at risk for experimentation with alcohol use in early adolescence. If this were upheld in future research, it suggests that parents should endeavor to continue play a role in helping to regulate alcohol use, even as youth age into middle adolescence. However, given that general parenting literature that suggests that providing adolescents with the freedom to set goals, make independent decisions, and self-regulate promotes psychosocial adjustment and well-being (Zimmer-Gembeck & Collins, 2003), a challenge will be to balance autonomy with harm reduction.

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Highlights

- We examined trajectories of alcohol-use specific parenting and youth alcohol use.
- Parental efficacy, messages about the risks of drinking, and discipline declined.
- Parental communication of health risks of alcohol was negatively related to drinking.
- Permission to drink was positively associated with adolescent alcohol use.
- Declines in disciplining were positively associated with adolescent alcohol use.

Table 1

Univariate Growth Model Results and Model Fit Indices

	Mean	Variance	Model Fit Indices	Cohen's d
Alcohol Use			(χ^2 : 1.23 (3); $p = 0.75$; CFI = 1.00 ; TLI = 1.00; RMSEA = 0.00)	
Intercept	-1.30**	1.65**		1.02 (large effect)
Slope	0.35**	0.35*		0.59 (large effect)
Parental Disciplining of Adolescents' Drinking			(χ^2 : 5.03 (3); $p = 0.17$; CFI = 0.99 ; TLI = 0.99; RMSEA = 0.04)	
Intercept	3.17**	0.56**		4.23 (large effect)
Slope	-0.04 [†]	0.56 [†]		0.05 (small effect)
Parental Efficacy About Preventing Adolescent Drinking			(χ^2 : 3.30 (3); $p = 0.35$; CFI = 0.99 ; TLI = 0.99; RMSEA = 0.02)	
Intercept	2.99**	0.19**		6.79 (large effect)
Slope	-0.06**	<0.01		0.60 (large effect)
Drinking With Parental Permission			(χ^2 : 4.89 (3); $p = 0.18$; CFI = 0.99; TLI = 0.99; RMSEA = 0.04)	
Intercept	-0.53**	0.15**		1.36 (large effect)
Slope	0.05**	0.27		0.10 (small effect)
Parental Communication of Alcohol-Related Consequences			(χ^2 : 5.03 (3); $p = 0.17$; CFI = 0.99; TLI = 0.99; RMSEA = 0.04)	
Intercept	3.26**	0.33**		5.72 (large effect)
Slope	-0.07**	0.03**		0.41 (medium effect)

Note: The intercept/slope covariance for all models was statistically nonsignificant. CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, RMSEA = Root-Mean-Square Approximation.

**
p < .01,

*
p < .05,

[†]
p < .10

Table 2
Bivariate associations with alcohol use growth factors and Model Fit Indices from parallel process growth models.

	Alcohol Intercept		Alcohol Slope		Model Fit Indices
	Cov.	(Corr)	Cov.	(Corr)	
Parental Disciplining of Adolescents' Drinking					
Intercept	-0.05	(-0.05)	-0.14	(-0.18)	χ^2 : 7.57 (11) , p = 0.75 ; CFI = 1.00 ; TLI = 1.00; RMSEA = 0.00)
Slope	-0.04	(-0.21)	0.06*	(0.44)	
Parental Efficacy About Preventing Adolescent Drinking					
Intercept	-0.09	(-0.15)	-0.08	(-0.07)	χ^2 : 20.22 (15); p = 0.16; CFI = 0.99; TLI = 0.99; RMSEA = 0.02)
Slope <i>a</i>					
Drinking With Parental Permission					
Intercept	2.56**	(0.78)	0.37	(-0.02)	χ^2 : 15.56 (11) p = 0.16; CFI = 0.99; TLI = 0.99; RMSEA = 0.04)
Slope <i>a</i>					
Parental Communication of Alcohol-Related Consequences					
Intercept	-0.20**	(-0.27)	0.04	(0.09)	χ^2 : 44.40 (11); p = 0.00; CFI = 0.96; TLI = 0.96; RMSEA = 0.13)
Slope	0.03	(0.16)	-0.07**	(-0.71)	

^a = variance and covariance of this slope factor set to 0.

** p < .01,

* p < .05