

# Parental Supervision and Alcohol Abuse Among Adolescent Girls

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abstract

**OBJECTIVE:** Inadequate parent supervision during the early adolescent years forecasts a host of conduct problems, including illicit alcohol consumption. Early pubertal maturation may exacerbate problems, because girls alienated from same-age peers seek the company of older, more mature youth. The current study examines overtime associations between parent autonomy granting and adolescent alcohol abuse during a developmental period when alcohol consumption becomes increasingly normative, to determine if early maturing girls are at special risk for problems arising from a lack of parent supervision.

**METHODS:** At annual intervals for 4 consecutive years, a community sample of 957 Swedish girls completed surveys beginning in the first year of secondary school (approximate age: 13 years) describing rates of alcohol intoxication and perceptions of parent autonomy granting. Participants also reported age at menarche.

**RESULTS:** Multiple-group parallel process growth curve models revealed that early pubertal maturation exacerbated the risk associated with premature autonomy granting: Alcohol intoxication rates increased 3 times faster for early maturing girls with the greatest autonomy than they did for early maturing girls with the least autonomy. Child-driven effects were also found such that higher initial levels of alcohol abuse predicted greater increases in autonomy granting as parent supervision over children engaged in illicit drinking waned.

**CONCLUSIONS:** Early maturing girls are at elevated risk for physical and psychological adjustment difficulties. The etiology of escalating problems with alcohol can be traced, in part, to a relative absence of parent supervision during a time when peer interactions assume special significance.



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**WHAT'S KNOWN ON THIS SUBJECT:** Minimal parent supervision and early pubertal maturation independently forecast alcohol misuse among adolescent girls. It is not known if pubertal timing amplifies risks associated with inadequate supervision during the formative years when youth are first exposed to alcohol.

**WHAT THIS STUDY ADDS:** Early maturing girls who enter secondary school with high levels of behavioral autonomy report a dramatic increase in alcohol abuse. The etiology of their problems with alcohol can be traced, in part, to heightened risks arising from low parent supervision.

Alcohol consumption in Western cultures typically begins sometime during the teenage years.<sup>1,2</sup> Drinking to intoxication is common, but its costs are steep. Adolescent alcohol abuse has been prospectively tied to the spread of infectious disease, depression, suicide, violence, and accidents.<sup>3-5</sup> Parents are often held responsible for adolescent alcohol misuse, on the assumption that opportunities to consume alcohol arise when supervision is inadequate. Some evidence supports the notion of parent culpability. For most individuals, exposure to alcohol initially occurs during a developmental period noteworthy for a rapid increase in time spent with friends. Insufficient parental monitoring increases the likelihood of affiliation with deviant (eg, delinquent or nonconforming) peers who encourage illicit alcohol consumption.<sup>6-8</sup> The conventional parent-driven narrative about the etiology of adolescent alcohol problems, however, overlooks the evocative role played by children. Low monitoring may be a response by the parent to the child's negativity or refusal to disclose information, both of which foster disengagement.<sup>9-12</sup> Child-driven effects that discourage parental involvement may occur alongside parent-driven effects that enable adolescent alcohol consumption. To estimate the degree to which parent behaviors at the outset of adolescence predict changes in alcohol abuse across adolescence, it is necessary to control for the initial level of each, as well as their overlapping trajectories of change.

Among girls, early pubertal maturation may exacerbate adverse consequences arising from inadequate parental monitoring. Early maturing girls are physically distinct from age mates. Ridicule and harassment accompany off-time maturation, which give rise to exclusion and loneliness.<sup>13,14</sup> Many early maturing girls seek the

company of older peers, so as not to stand out physically.<sup>15</sup> Affiliation with older peers creates vulnerability, because influence is not equally distributed between friends; younger partners tend to adopt the drinking habits of older partners.<sup>16</sup> On average, older adolescents drink more than younger adolescents, providing early maturing girls opportunities to consume alcohol that are not available to most later maturing girls.<sup>1,17</sup> To make matters worse, many early maturing girls find themselves in the company of deviant peers who welcome those rejected by others.<sup>18</sup> Thus, early pubertal maturation may increase the risks associated with poor parental supervision because early maturing girls befriend older, deviant peers who consume alcohol as part of their oppositional identity. The current study tests the hypothesis that premature autonomy granting at the beginning of secondary school predicts escalating alcohol abuse across the critical ages of 13 to 16, when youth typically begin to consume alcohol. The risks of poor monitoring were assumed to be especially great for early maturing girls, who tend to affiliate with older peers.

## METHOD

### Participants

The final sample of 957 girls was drawn from the 10 to 18 Project, a longitudinal community study of all students attending secondary school (seventh through ninth grades) in a small city in central Sweden. Girls were 12 to 14 years old (mean = 13.20, SD = 0.43) at the outset. Initially, 69.1% ( $n = 575$ ) of the participants lived with both biological parents, 14.1% ( $n = 117$ ) lived with 1 biological parent and 1 stepparent (or boyfriend/girlfriend), and 16.8% ( $n = 140$ ) lived with a single biological parent. Of the parents who reported their work status, 58.7% ( $n = 314$ ) of mothers and 93.9% ( $n = 463$ ) of

fathers indicated full-time employment.

### Procedure

Students were recruited in classrooms during school hours. They were informed that participation was voluntary and were assured that answers would not be shared with parents, teachers, or police. Parents received a postage-paid card to return if they did not wish to have their child participate in the study and ~1% did so. The study was approved by a local human subjects review board. Trained research assistants administered questionnaires during regular school hours. Teachers were not present. In this cohort sequential study, data were collected from all secondary students at annual intervals for 5 consecutive years.

### Instruments

#### *Adolescent Reports of Parent Autonomy Granting*

The operationalization of parent supervision is a hotly debated topic. We focus on autonomy granting, defined in terms of the child's perception of self-determination, because independent decision-making is an important factor in health-risk behaviors. At each wave of data collection, participants completed a 6-item questionnaire assessing perceptions of freedom and responsibility granted by parents.<sup>19</sup> Sample item: "My mother lets me decide what time I should be home at night." Items were rated on a scale ranging from 1 (never) to 3 (most often). Responses were averaged across items. Internal reliability was adequate ( $\alpha = 0.77-0.82$ ).

#### *Adolescent Reports of Alcohol Abuse*

At each wave of data collection, participants completed a 3-item measure assessing the frequency of alcohol intoxication during the past month or year.<sup>20,21</sup> Sample item: "Over the last month, how many times did you drink alcohol until you

got drunk?" Items were scored on a scale ranging from 1 (no, it has not happened) to 3 (several times). Responses were averaged across items. Internal reliability ( $\alpha = 0.83\text{--}0.89$ ) and 1-year test-retest reliability ( $r = 0.72$ ) were good. In previous studies, items from the present scale were tied to objective concurrent measures of adolescent problem drinking and predicted problem drinking and treatment of alcohol abuse during young adulthood.<sup>22</sup>

### Pubertal Timing

At the first, second, and fifth waves of data collection, participants reported age at first menstruation.<sup>23</sup> Participants were categorized as early maturing ( $n = 184$ , menarche before age 12), on-time ( $n = 587$ , menarche between ages 12 and 13), and late maturing ( $n = 186$ , menarche after age 13). Students whose participation was limited to data collection waves that did not include the age of menarche survey ( $n = 254$ ) were excluded from analyses. There were no differences on any study variables between those included in the investigation and those excluded because of missing pubertal timing data.

### Plan of Analysis

Individual growth curves were created for each participant from grade 7 to grade 10 for perceived parent autonomy granting and adolescent alcohol abuse. The analyses were conducted with Mplus version 7.12<sup>24</sup> by using robust maximum likelihood (MLR) estimation within a structural equation model framework. Grade 7 was selected as a starting point in the analyses because this was the first year of secondary school in Sweden, a period marked by a sharp increase in unsupervised time with peers. Grade 10 was selected as a concluding point in the analyses for practical reasons; 4 time points permitted the testing of nonlinear effects, but missing data (due to the

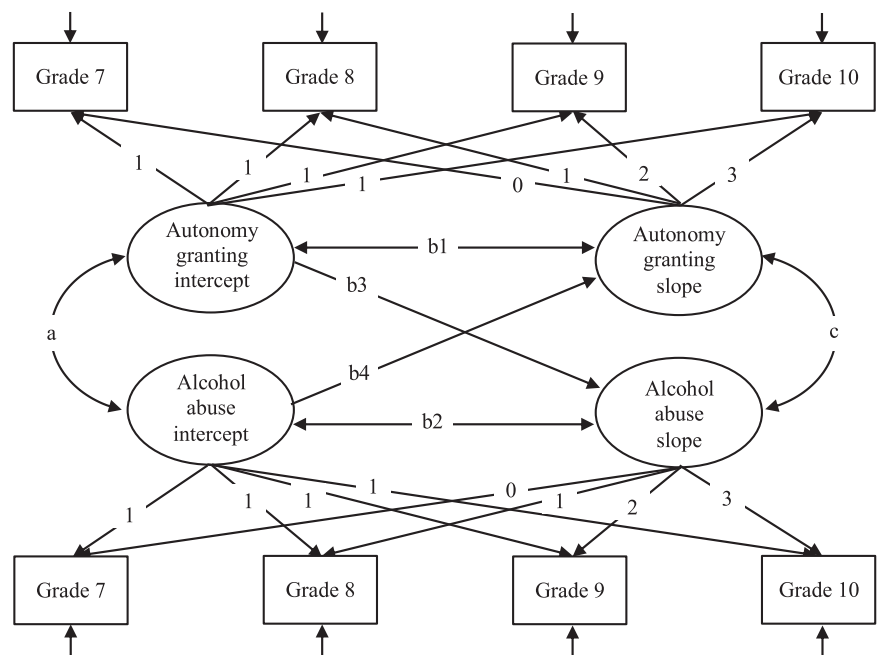
cohort sequential design) increased exponentially with the addition of later grades.

Intraindividual change was modeled with factor loadings at each time point, estimating the latent factors of the intercept (mean levels), the slope (linear change over time), and the quadratic slope (nonlinear change over time) for each variable. Each of the latent constructs was based on 4 annual time points. Intercept loadings were set at 1, and linear slope loadings and quadratic slope loadings were set at fixed intervals (linear: 0, 1, 2, 3; quadratic: 0, 1, 4, 9). A parallel process growth curve model examined associations between the intercepts and slopes of parent autonomy granting and adolescent alcohol abuse. Standardized  $\beta$  weights are presented. The measurement model is depicted in Fig 1.

To test the hypothesis that pubertal timing moderates associations between parent autonomy granting and adolescent alcohol abuse, multiple group models contrasted

paths across pubertal maturation groups. Separate models were initially constructed for early ( $n = 184$ ), on-time ( $n = 587$ ), and late maturing groups ( $n = 186$ ). For each path, scaled  $\chi^2$  difference tests were conducted to determine if associations significantly differed ( $P < .05$ ) across groups. Paths that did not differ were constrained to equality. Initial analyses indicated that there were no statistically significant differences between on-time and late maturing girls on any paths, so the on-time and late maturing groups were collapsed in the final analyses.

Statistically significant associations between the intercept of 1 variable and the slope of the other were followed with simple slopes analyses to estimate the slope of the outcome variable at different initial levels of the predictor variable.<sup>25</sup> Simple slopes for outcome variables are estimated at low (1 SD below the mean), medium (the mean), and high (1 SD above the mean) conditional intercept values.



**FIGURE 1** Parallel process growth curve measurement model describing linear associations between perceived parent autonomy granting and adolescent alcohol abuse from grades 7 to 10.

Missing data came from 2 sources: wave-level (ie, planned missingness) and attrition (ie, drop-outs and refusals). Wave-level missingness described participants who began the study after grade 7 or participants for whom the study ended before they reached grade 10. Across variables, 25.4% of the data were missing due to the planned missing design. By definition, wave-level missing data were missing at random. Attrition was responsible for an average of 12.8% of missing data across variables (range: 2.9%–25.7%). Little's Missing Completely at Random (MCAR) test indicated that data missing due to attrition were missing completely at random,  $\chi^2(59) = 55.57, P = .60$ . All missing data were handled with full information maximum likelihood (FIML), which is a robust and accurate estimator of results when up to 50% of data are missing at random.<sup>26</sup>

## RESULTS

### Univariate Growth Curves

Preliminary analyses explored the feasibility of univariate nonlinear growth curves. Although model fit was acceptable for perceived parent autonomy granting ( $\chi^2[1, N = 927] = 0.46, P = .50$ ; Comparative Fit Index [CFI] = 1.00, root mean square error of approximation [RMSEA] = 0.00) and for adolescent alcohol abuse ( $\chi^2[1, N = 957] = 0.03, P = .85$ ; CFI = 1.00, RMSEA = 0.00), the mean and variance of the quadratic slope of

perceived parent autonomy granting (mean = 0.03, variance = 0.01), and the mean of the quadratic slope of adolescent alcohol abuse (mean = -0.02, variance = 0.02) did not reach conventional levels of statistical significance. As a consequence, quadratic functions were omitted from the final growth curve models.

Model fit for univariate linear growth curve models was acceptable for parent autonomy granting ( $\chi^2[5, N = 927] = 19.89, P = .001$ ; CFI = 0.95, RMSEA = 0.06) and for adolescent alcohol abuse ( $\chi^2[5, N = 957] = 17.99, P = .003$ ; CFI = 0.97, RMSEA = 0.05). Table 1 describes means and variances for the intercept and slope parameters for each univariate growth curve model. All parameters were statistically significant ( $P < .05$ ). The slope results indicate that both parent autonomy granting and adolescent alcohol abuse increased linearly over time.

### Pubertal Timing as a Moderator of Overtime Associations Between Adolescent Alcohol Abuse and Perceived Parent Autonomy Granting

As a first step, a parallel process growth model explored associations between the intercepts and slopes of perceived parent autonomy granting and adolescent alcohol abuse. The model fit the data ( $\chi^2[22, N = 957] = 61.83, P < .001$ ; CFI = 0.96, RMSEA = 0.04).

As a second step, a 2-group parallel process growth curve model

examined whether associations differed across early maturing and on-time/late maturing groups. The model fit the data ( $\chi^2[54, N = 957] = 80.18, P = .01$ ; CFI = 0.97, RMSEA = 0.03). When compared with the original model, the addition of pubertal timing as a moderator and the addition of equivalence constraints for on-time and late maturing groups did not significantly worsen model fit. Figure 2 presents results from the 2-group model. Separate  $\beta$  weights are presented for paths with statistically significant differences between the early maturing and the on-time/late maturing groups.

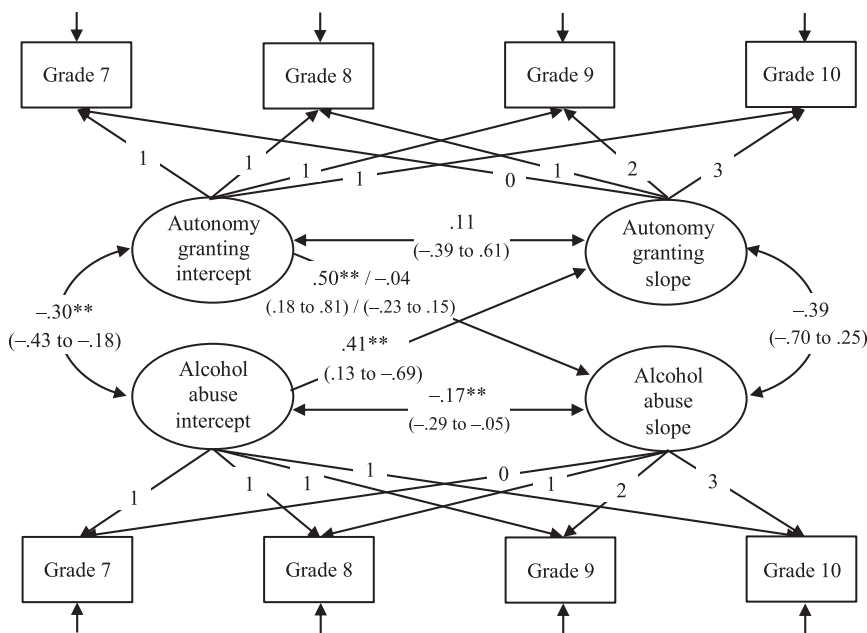
There was a negative association between the intercept of adolescent alcohol abuse and the intercept of perceived parent autonomy granting ( $\beta = -0.30, P < .001$ ); higher initial levels of adolescent alcohol abuse corresponded with lower initial levels of autonomy granting. The association between the slope of perceived parent autonomy granting and the slope of alcohol abuse did not reach conventional levels of statistical significance ( $\beta = -0.39, P = .36$ ).

For early maturing girls, the intercept of perceived parent autonomy granting was positively associated with the slope of adolescent alcohol abuse ( $\beta = 0.50, P = .002$ ); higher initial levels of autonomy granting predicted greater increases in adolescent alcohol abuse. For on-time/late maturing girls, the intercept

**TABLE 1** Means, SDs, and Parameter Estimates for Univariate Growth Curves

Variable	Descriptive Statistics		Intercept				Linear Slope			
	Mean	SD	Mean (95% CI)	SE	Variance (95% CI)	SE	Mean (95% CI)	SE	Variance (95% CI)	SE
Parent autonomy granting			2.22** (2.19–2.25)	0.02	0.08** (0.05–0.11)	0.01	0.05** (0.04–0.07)	0.01	0.01* (0.00–0.01)	0.01
Grade 7	2.25	0.45	—	—	—	—	—	—	—	—
Grade 8	2.25	0.47	—	—	—	—	—	—	—	—
Grade 9	2.31	0.47	—	—	—	—	—	—	—	—
Grade 10	2.42	0.49	—	—	—	—	—	—	—	—
Adolescent alcohol abuse			1.13** (1.1–1.16)	0.01	0.09** (0.07–0.11)	0.01	0.21** (0.19–0.23)	0.01	0.03** (0.02–0.04)	0.01
Grade 7	1.13	0.37	—	—	—	—	—	—	—	—
Grade 8	1.35	0.58	—	—	—	—	—	—	—	—
Grade 9	1.56	0.68	—	—	—	—	—	—	—	—
Grade 10	1.73	0.67	—	—	—	—	—	—	—	—

*N* = 957. \* $P < .05$ ; \*\* $P < .01$ . CI, confidence interval.



**FIGURE 2**

Results of a parallel process growth curve model describing associations between perceived parent autonomy granting and adolescent alcohol abuse, moderated by pubertal timing ( $N = 957$ ). For paths with 1  $\beta$  weight, results for early and on-time/late maturing girls were constrained to be equal. For paths with 2  $\beta$  weights, results for early maturing girls ( $n = 184$ ) are reported on the left of the slash; results for on-time/late maturing girls ( $n = 773$ ) are reported on the right of the slash. For each path, 95% confidence intervals are presented in brackets. \* $P < .05$ , \*\* $P < .01$ , 2-tailed.

of perceived parent autonomy granting was not associated with the slope of adolescent alcohol abuse ( $\beta = -0.04$ ,  $P = .68$ ). There was a statistically significant difference between early and on-time/late maturing girls in the magnitude of association between the intercept of perceived parent autonomy granting and the slope of adolescent alcohol abuse,  $\Delta\chi^2(1, N = 957) = 7.34$ ,  $P = .007$ . Figure 3 presents the results of simple slope analyses for early maturing girls. From the seventh to the tenth grade, there was an estimated 84% increase in adolescent alcohol abuse at low levels of perceived parent autonomy granting ( $\beta = 0.27$ ,  $P = .36$ ), a 160% increase in adolescent alcohol abuse at medium levels of perceived parent autonomy granting ( $\beta = 0.47$ ,  $P = .049$ ), and a 234% increase in adolescent alcohol abuse at high levels of perceived parent autonomy granting ( $\beta = 0.67$ ,  $P < .001$ ).

The intercept of adolescent alcohol abuse was positively associated with the slope of perceived parent

autonomy granting ( $\beta = 0.41$ ,  $P = .004$ ); the higher the initial level of adolescent alcohol abuse, the greater the increase in autonomy granting. There were no differences between early maturing and on-time/late maturing girls. Figure 4 presents the results of simple slope analyses. From the seventh to the tenth grade, there was an estimated 12% increase in perceived parent autonomy granting at low levels of adolescent alcohol abuse ( $\beta = 0.45$ ,  $P < .001$ ), an 18% increase in perceived parent autonomy granting at medium levels of adolescent alcohol abuse ( $\beta = 0.55$ ,  $P < .001$ ), and a 24% increase in perceived parent autonomy granting at high levels of adolescent alcohol abuse ( $\beta = 0.79$ ,  $P < .001$ ).

### Supplemental Analyses

To examine characteristics of peers that may contribute to risks arising from early pubertal maturation, we conducted a series of 1-way analyses of variance with pubertal timing groups (early, on-time, and late) as

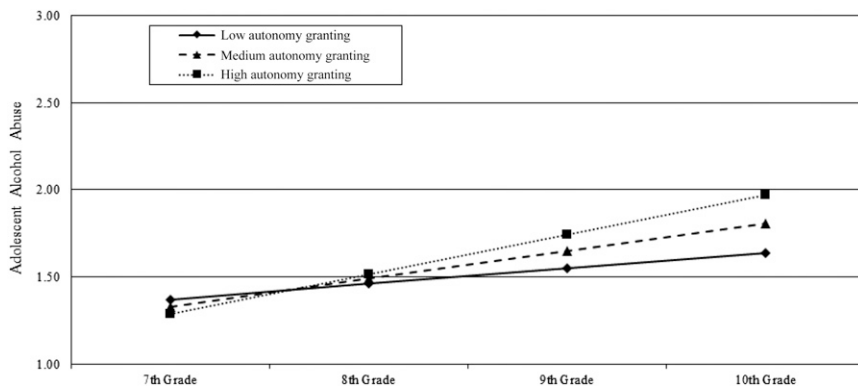
the independent variable. The dependent variables were friend and peer affiliate age and friend and peer affiliate alcohol abuse. There were statistically significant differences between pubertal timing groups on best friend age at grade 7 and the average age of all peers nominated as affiliates in grade 7 ( $F[2, 597] > 4.06$ ,  $P < .02$ ). There were also statistically significant differences between pubertal timing groups on alcohol abuse reported by the best friend at grade 7 and alcohol abuse reported by all peers nominated as affiliates in grade 7 ( $F[2, 597] > 3.02$ ,  $P < .05$ ). Compared with on-time and late maturing girls, early maturing girls in grade 7 had best friends and peer affiliates who were older ( $d > 0.33$ ) and who reported higher rates of alcohol abuse ( $d > 0.35$ ).

Parallel process growth curve models were rerun to include friend and peer affiliate age and friend and peer affiliate alcohol abuse as control variables. Models included correlated paths between control variables and intercept terms, and predictive paths from control variables to slope terms. The same pattern of statistically significant associations emerged for models with and without control variables.

### DISCUSSION

Early maturing girls entering secondary school with minimal supervision from parents are at considerable risk for dramatic increases in problem drinking. As expected, early maturing girls affiliated with older peers who reported relatively high rates of alcohol abuse. Yet associations held after controlling for friend age and friend level of alcohol abuse, suggesting that premature autonomy granting uniquely contributes to future problem drinking in early maturing girls. We can only speculate on the mechanisms. Early maturing girls tend to be dissatisfied with their appearance.<sup>27</sup> Some are rejected by



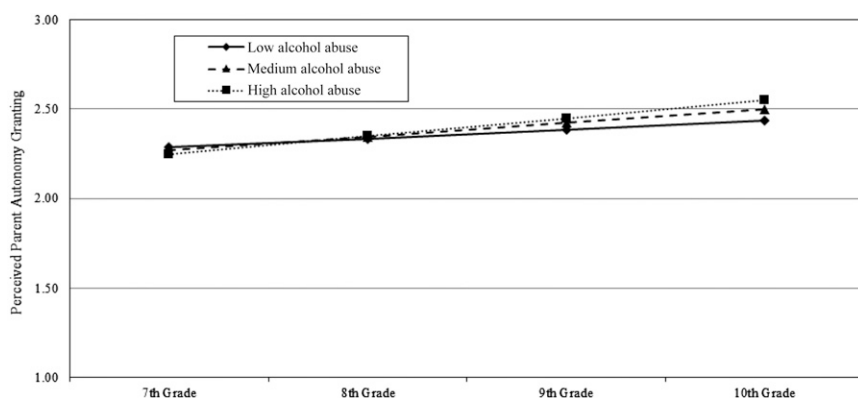


**FIGURE 3** Estimated change in adolescent alcohol abuse from seventh to 10th grade for early maturing girls ( $n = 184$ ) at low ( $-1$  SD), medium (mean), and high ( $+1$  SD) levels of seventh grade perceived parent autonomy granting.

same-age peers and others experience heightened conflict with parents.<sup>28</sup> Biological changes at puberty provoke an increase in depressive symptoms.<sup>29</sup> Any and all of these factors may lead to self-medication with alcohol.<sup>30-33</sup> The fact that premature autonomy granting was unrelated to changes in rates of intoxication among on-time and late maturing girls suggests that the efficacy of particular forms of parenting depend on the degree to which they are (a) developmentally appropriate and (b) match the adjustment challenges presented by the environment.

Consistent with findings indicating that parents respond to child conduct problems by decreasing supervision, we found that parental autonomy

granting accelerated as a function of adolescent alcohol abuse. Decreasing supervision may be the product of a negative reinforcement trap, wherein parents are reinforced when they desist from control attempts.<sup>34</sup> Decreasing supervision may be the product of successful efforts by the child to limit parent knowledge or to convince the parent that oversight is no longer necessary.<sup>35</sup> Finally, decreasing supervision may be the product of child behavior problems that precipitate declining interpersonal closeness.<sup>36</sup> We expected, but did not find, differences between pubertal timing groups in associations between initial adolescent alcohol abuse and changes in parent autonomy granting. Null effects should be interpreted with



**FIGURE 4** Estimated change in perceived parent autonomy granting from seventh to 10th grade for girls ( $n = 957$ ) at low ( $-0.35$  SD; zero value), moderate (mean), and high ( $+1.0$  SD) levels of seventh grade adolescent alcohol abuse.

caution because the multiple-group model lacked the power to detect small group differences. Should the findings hold, however, they suggest that parent responses to adolescent efforts to demonstrate social maturity are not modulated by the degree to which the child is physically mature.<sup>37</sup> Regardless of physical maturity, parent supervision declines in the face of illicit drinking by children.

Our study is not without limitations. Perceived parent autonomy granting and adolescent alcohol abuse were both assayed through self-reports. Although some may advocate the use of parent reports to avoid shared-reporter variance, parents are not reliable sources of information about either category of behavior.<sup>38,39</sup> The participants lived in a small community; it is not known whether findings will generalize to youth in more urban and transient settings. The legal age of drinking is 18 in Sweden. Developmental trends may differ in cultures where sanctioned alcohol consumption begins earlier or later.

The findings should not be interpreted as support for the proposition that paternal restrictiveness is an effective strategy for combatting adolescent alcohol consumption. Restrictiveness interferes with the maintenance of close family ties, which encourage affiliation with prosocial, nondeviant age mates. Pediatricians and clinicians should direct families to intervention programs that balance supervision and engagement. We suspect that educating parents about the relation between premature autonomy granting and alcohol abuse in early maturing girls may be an important motivator, but it is not clear if this information alone will be a sufficient form of family intervention.

## CONCLUSIONS

Adolescent alcohol consumption is not simply a matter of normative experimentation. Early adolescent drinking forecasts a host of long-term adjustment difficulties.<sup>40,41</sup>

Practitioners presented with early maturing girls may well consider advising parents about the unique risks confronting these children. Heightened risks imply the need for

heightened vigilance, and parents of early maturing girls should be reminded that it is possible to project warmth and support, without retreating from supervision.

#### ABBREVIATIONS

CFI: Comparative Fit Index  
RMSEA: root mean square error of approximation

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