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PREDICTING STEEP ESCALATIONS IN ALCOHOL USE OVER THE TEENAGE YEARS: AGE-RELATED VARIATIONS IN KEY SOCIAL INFLUENCES

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Abstract

Aims—This study examined how family, peer and school factors are related to different trajectories of adolescent alcohol use at key developmental periods.

Design—Latent Class Growth Analysis was used to identify trajectories based on five waves of data (from Grade 6 - age 12 to Grade 11 – age 17), with predictors at Grade 5, Grade 7, and Grade 9 included as covariates.

Setting—Adolescents completed surveys during school hours.

Participants—808 students in Victoria, Australia.

Measurements—Alcohol use trajectories were based on self-reports of 30 day frequency of alcohol use. Predictors included sibling alcohol use, attachment to parents, parental supervision, parental attitudes favorable to adolescent alcohol use, peer alcohol use, and school commitment.

Findings—8.2% showed steep escalation in alcohol use. Relative to non-users, steep escalators were predicted by age-specific effects for low school commitment at Grade 7 ($p = .031$) and parental attitudes at Grade 5 ($p = .003$), and age-generalized effects for sibling alcohol use ($ps = .001/.012/.033$ at Grade 5/7/9) and peer alcohol use ($ps = .041/.001/.001$ at Grade 5/7/9). Poor parental supervision was associated with steep escalators at Grade 9 ($p < .001$) but not the other grades. Attachment to parents was unrelated to alcohol trajectories.

DECLARATION: The authors declare that the material has not been published in whole or in part elsewhere, the paper is not currently being considered for publication elsewhere, all authors have been personally and actively involved in substantive work leading to the report and will hold themselves jointly and individually responsible for its content, and all relevant ethical safeguards have been met in relation to patient or subject protection.

Conclusions—Parental disapproval of alcohol use before transition to high school, low school commitment at transition to high school, and sibling and peer alcohol use during adolescence are associated with higher risk of steep escalations in alcohol use.

Keywords

adolescent; adolescence; alcohol; trajectories; risk-factors; longitudinal; growth; parent; sibling; peer; school commitment; age-specific effects

INTRODUCTION

Alcohol use contributes to a range of health and social problems, and is commonly initiated in early-to-middle adolescence and grows strongly in subsequent years [1, 2]. Average rates of growth in alcohol use belie considerable diversity in growth rates [3-5]. Relative to the majority of adolescents who show steady growth in alcohol use, some show rapid growth in alcohol use [3]. A focus on this group is important because rapid growth in alcohol use has demonstrated prognostic significance for several adverse outcomes, including alcohol problems, alcohol dependence, academic failure, and multiple use of other drugs [4, 6].

The present paper focuses on modifiable social factors that contribute to rapid growth in alcohol use through the teenage years. Prior research has established that social factors (including peers, parents and siblings) are related to adolescent alcohol use. Peer alcohol use is a long established predictor of adolescent alcohol use [7-10]. Parents have protective influences when they disapprove of adolescent alcohol use [11], and when they provide adequate supervision of their adolescents' activities [12]. Emotionally close relationships have also been found to be protective when parents communicate disapproval of alcohol use [13]. Also, sibling substance use is a leading correlate of adolescent substance use [11, 14, 15], and school commitment reduces the risk of alcohol use [16, 17].

It is likely that social influences on alcohol use vary with age. For example, time spent with family members generally decreases and time spent with peers typically increases as adolescents move from late childhood to middle adolescence [18]. Fleming et al. [19] found that at Grade 5, negative family relationships and weak school bonding predicted substance misuse at age 19, but negative peer influences did not. At Grade 9, these factors continued to be significant, but negative peer influences were also significant. While sibling influences on alcohol and other substance use are known to be strong, there is little research on the extent to which sibling influences on substance use vary with age. Siblings, and older siblings in particular, may have especially strong influences on very young adolescents, given that after-school contact for this age group most commonly involves older siblings [20], siblings may increase exposure to older high-risk social networks [21], the susceptibility of young adolescents to peer influences is elevated [22], and siblings are often primary role models that very young adolescents seek to emulate [23, 24].

This longitudinal study sought to examine how family, peer and school factors at specific ages were related to rapid growth of alcohol use. Based on the research summarized above, we focused on association with sibling alcohol use, parental supervision, parent attitudes about adolescent alcohol use, attachment to parents, peer alcohol use, and school commitment. We examined how these factors measured at Grade 5 (11 years of age), Grade 7 (13 years), and Grade 9 (15 years) varied in their association with steep escalation in alcohol use. Grades 5 and 7 were of most interest because in Australia, adolescents transition from elementary to secondary school between these ages and this transition is associated with substantial increases in alcohol-related risks [17]. Grade 9 was of special interest because this is when alcohol use escalates in prevalence and when Australian

parents commonly become more liberal in their attitudes towards adolescent alcohol use [25].

We expected that social factors would vary in the strength with which they predict steep escalations in alcohol use, compared to two other trajectories – *slow increases* in alcohol use and *non-use of alcohol*. The *slow increases* trajectory has previously been demonstrated to characterize the development of alcohol use for the majority of adolescents [3]. The trajectory *nonuse of alcohol* represents national guidelines for alcohol use in Australia [zero alcohol use to 15 years; 26]. We anticipated that family factors (parental attitudes favorable to alcohol use, parental supervision, low parent-adolescent attachment, sibling alcohol use) at Grade 5 and Grade 7 would predict steep escalations in alcohol use relative to the other two trajectories. We also anticipated that at Grade 7 (the year following transition to secondary school), low school commitment and involvement with peers who consume alcohol would be associated with steep escalation in alcohol use. This study was based on the Australian arm of the International Youth Development Study (IYDS), an ongoing longitudinal study focused on the development of healthy and problem behaviors among young people [for further detail see: 27].

METHOD

Sample

The initial sample consisted of 927 Grade 5 adolescents (mean age 11 years, 52% female) from public and private schools in Victoria (Australia). The participants were first assessed in 2002, and were followed yearly until Grade 11, with the exception of Grade 8 (six waves). Of the initial sample, 55 had one or no follow-ups, rendering these cases inappropriate for trajectory analysis. Forty reported using a fictitious drug or reported they had not completed the survey with honesty, and 24 showed highly erratic drinking patterns (increased 3+ points on the scale in one wave followed by an equally sharp decrease in the next wave). These participants were excluded from the analysis and the final sample was 808 (87% of the original sample). Compared to inclusions, excluded participants had a mother with less than secondary education, $\chi^2(3) = 7.73, p = .016$. There was no statistically significant difference between included and excluded participants in other variables.

Procedure

Approval for the research was obtained from the Ethics Committees of the Royal Children's Hospital and the University of Melbourne. The study used a two-stage cluster sampling design. In Stage 1, Victorian public and private schools were randomly selected via probability proportional to size sampling. A total of 234 schools were approached and 152 agreed to participate. In Stage 2, a random sample of 55 Grade 5 classes was selected. This procedure yielded 1349 eligible students. Prior to the data collection, parent consent forms were distributed to all eligible students and 1284 were returned, of which 946 (70.1%) of parents consented. Project staff administered the surveys in the classroom and absentees completed the survey at a later date or were interviewed by telephone. Information about parents' education and income level were collected through telephone interviews with the parents in 2002.

Measures

Students completed a modified version of the Communities That Care Youth survey, an epidemiological instrument designed to measure adolescent health and social problems [28], with minor language adaptations to fit the Australian context [27].

Alcohol use—Alcohol consumption was derived from the item ‘In the past 30 days on how many occasions (if any) have you had more than just a few sips of an alcoholic beverage (like beer, wine or liquor/spirits)?’ (0 ‘Never’, 1 ‘1-2 times’, 2 ‘3-5 times’, 3 ‘6-9 times’, 4 ‘10-19 times’, 5 ‘20-29 times’, 6 ‘40+ times’). Due to the small number of participants reporting 10+ episodes of alcohol use (0.5% to 2.5% across waves), categories 4 to 6 were collapsed to a new category 4 ‘10+ times’. These response were recoded to capture mid-points (0 “Never”, 1.5 “1-2 times”, 4 “3-5 times”, 7.5 “6-9 times” and 15 “10+ times”).

Parent/family measures—*Parental attitudes favorable to alcohol use* at Grade 5 was measured with the item ‘How wrong do your parents feel it would be for you to drink beer, wine or liquor/spirits regularly (at least once or twice a month)?’ (1 ‘Very wrong’, 2 ‘Wrong’, 3 ‘A little bit wrong’ and 4 ‘Not wrong at all’). At Grade 6 onwards, this variable was measured with 2 items ‘How wrong do your parents feel it would be for you to drink beer or wine regularly (at least once or twice a month)?’ and ‘How wrong do your parents feel it would be for you to drink liquor regularly (at least once or twice a month)?’ *Attachment to parents* was measured using 4 items (e.g., ‘Do you feel very close to your mother/father?’). The response scale was 1 ‘Definitely no’, 2 ‘No’, 3 ‘Yes’ and 4 ‘Definitely yes’, and alphas were high ($\alpha = 0.80-0.85$). *Sibling alcohol use* was measured with the item ‘Have any of your brothers or sisters ever drunk alcohol?’ Participants were coded as 0 (no siblings or no drinking siblings) or 1 (1+ drinking siblings). *Parent supervision* was measured using 9 items (e.g., ‘When I am not at home, one of my parents knows where I am and who I am with’) ($\alpha = 0.73 - 0.83$). Items were rated on a 4-point scale (1 ‘Definitely yes’, 2 ‘Yes’, 3 ‘No’ and 4 ‘Definitely no’).

Peer and school measures—*Peer alcohol use* was measured with the item ‘In the past year (12 months), how many of your best friends have tried alcohol?’ (0 ‘None of my friends’, through to 4 ‘Four of my friends’). *School commitment* was measured with 7 items (e.g., ‘During the last four weeks, how many whole days have you missed because you skipped or ‘cut/wagged’?’ (1 ‘None’ to 5 ‘11 or more’, $\alpha = 0.71 - 0.80$).

Demographic and other variables—*Gender* was coded as 0 ‘Male’ and 1 ‘Female’. Both mother and father’s education were coded as 1 ‘Less than secondary school’, 2 ‘Completed secondary school’, 3 ‘Completed post secondary education’ and 4 ‘Not disclosed’.

Analysis

The key analysis comprised of three phases. In Phase 1, an unconditional latent class growth analysis (LCGA) was used to identify homogeneous drinking classes based on 5 waves of data (frequency of alcohol use was not available in the first of the six waves, when participants were in Grade 5). Model fitting was performed in Mplus [29] and the maximum likelihood robust estimator was used. An a priori identified class “Non-user” was specified in the LCGA. To capture potential nonlinear increases in alcohol consumption, four parameters, the intercept, linear quadratic and the cubic terms of time, were used to characterize growth. Model fitting began with a 2-class solution and increased successively to a 6-class solution. Determination of number of classes was based on a number of criteria [30]. First, the Bayesian Information Criterion (BIC) [31] and Sample Size Adjusted Bayesian Information Criterion (SSABIC) [32] were compared across models with different numbers of classes (lower values have better parsimony and fit). Second, average posterior probabilities of class membership were used to evaluate classification quality (values close to one indicate clear classification). Third, all latent classes were required to have a prevalence of at least 1% to ensure meaningful extraction of classes and sufficient sample size for comparison between latent classes. In Phase 2, the conditional LCGA was estimated

for each of the Grades (5/7/9). In addition to the above measures, an interaction term of parental attitudes favorable to alcohol use and parent-child attachment was included, based on prior significant findings [13]. Demographic variables including gender, age and parent's education were controlled for. In Phase 3 a series of sensitivity and supplementary analyses were performed to examine the robustness of the analyses.

RESULTS

We first present an overview of mean levels of alcohol use, retention rates, and basic demographic variables across waves (see Table 1). Attrition rates were low across all waves (from 1.2% at Grade 6 to 14.7% at Grade 11), gender proportions were largely invariant over time, and alcohol use showed an upward trend from less than once per month to 3-4 times per month at Grade 11.

Unconditional latent class growth analysis

Information criteria decreased progressively with an increasing number of classes (see Table 2). The 4-class, 6-class and 7-class solution failed to converge to the same log likelihood value over a set of 1000 starting values. This suggested that each starting value ended up at a different local maximum and the parameter estimates were not reliable [33]. Therefore, these three solutions were rejected. In relation to the 3-class solution, the 5-class solution yielded trajectories that were sufficient in size, and that were qualitatively distinct and interpretable. Since the 5-class solution had lower BIC and SSABIC, yielded clearly distinctive and interpretable trajectories, and the average posterior probabilities were over 0.95, it was selected as the optimal solution.

The estimated parameters for the 5-class model are shown in Table 3. In all the classes, the intercept, linear, quadratic and cubic terms were significant ($p < .05$). Figure 1 shows the 5-class solution. Aside from the *a priori* class *non-users* ($n = 111$, 13.7% of the sample), two classes were of primary interest for this study. *Steep escalators* ($n = 66$, 8.2%) showed strong increases in alcohol use from Grade 7 to 11. At Grade 11, they were consuming alcohol at an average of 12 times/month. *Slow increasers* ($n = 544$, 67.3%) had very low alcohol use at Grade 5 that increased slowly and steadily to about 3 times/month at Grade 11. The two other classes were not of primary interest in this study. *Stable moderate drinkers* ($n = 64$, 7.92%) reported alcohol use at 5 times/month at Grade 7 which remained stable over time. A very small group, *early high drinkers* ($n = 23$, 2.84%) had high levels of alcohol use upon the transition to high school that decreased steadily over time. Table 4 compares drinking frequencies for the two drinking classes of primary interest in this study - the steep escalators and slow increasers. The drinking frequency of steep escalators was significantly higher than the slow increasers at all waves. The differences were small at Grades 6 and 7 (Cohen's $d = 0.12$ and 0.32 respectively) and became large at Grade 9, 10 and 11 (Cohen's d range $1.32 - 4.06$).

Conditional LCGA

Table 5 shows odd ratios for two comparisons, steep escalators to non-users and steep escalators to slow increasers. Relative to non-users, steep escalators were more likely to have a sibling who consumed alcohol (Grades 5/7/9, $ps = .001/.012/.033$), parents with favorable attitudes to alcohol use (Grade 5/9, $ps = .003/<.001$), poor parental supervision (Grade 9, $p < .001$), low school commitment (Grade 7, $p = .031$), and higher number of drinking peers (Grade 5/7/9, $ps = .041/<.001/<.001$). Relative to slow increasers, sibling alcohol use (Grades 5, $p = .004$), poor parental supervision (Grade 9, $p < .045$), parental attitudes favorable to drinking (Grade 9) ($p = .005$), having more peers who consume

alcohol (Grade 7/9, $ps = .048/.001$), and low school commitment (Grade 7) ($p = .012$) were significantly related to steep escalation.

Sensitivity and robustness analyses

In an LCGA of alcohol data, Sher et al. [34] found that using different time frames within a longitudinal study could yield trajectories that were not consistent. We performed two additional LCGA, one with data from Grade 7 to 11 only and one with data from Grade 6 to Grade 10 only. The trajectories identified in these two analyses were nearly identical to those identified in the full analyses and thus our solution was robust against the use of different time frames.

In the coding of the drinking frequency, we used 15 for the category “10+ times”. We did two additional sensitivity analyses to examine the robustness of our result. In the first one, we coded the “10+ times” category as 12 and in the second one as 18. The shape of the trajectories identified in these two analyses was very similar to the one we coded the “10+ times” as 15. Therefore, our analysis was robust against the way we coded this category.

DISCUSSION

While the majority of adolescents show a steady growth in alcohol use as they get older, a meaningful proportion of adolescents show steep escalations in alcohol use. This study examined how family, peer and school factors are related to different trajectories, and the extent to which these social factors varied at key developmental periods. Three classes were identified that were of prime interest – steep escalators (8.2%), slow increasers (67.3%), and a third *a priori* class of non-users (13.7%). There was a mixture of grade-specific and time-generalized associations between social influences and these trajectories. Low school commitment predicted steep escalation relative to other trajectories at Grade 7, which is when transition to high school occurred. At Grade 5, having a sibling who consumed alcohol predicted steep escalation compared to slowly increasing alcohol use, and this effect was not significant at later grades. Compared to non-users, having a sibling who consumed alcohol and peers who consumed alcohol predicted steep escalation at all grade levels. Parental attitudes favorable to drinking at Grade 9 were associated with steep escalation relative to non-drinkers and slow increasers. Parental attitudes also predicted step escalation at Grade 5 relative to non-drinkers. Relative to slow increasers, peer alcohol use at Grades 7 and 9 was significantly related to steep escalation, but this effect was not present at Grade 5. Compared to non-users, peer alcohol use predicted at all three grades. For all school grades, attachment to parents was unrelated to steep escalation.

In addition to the patterns of significance for each comparative model (steep escalators versus non-users and slow increasers), the results enabled the robustness of effects to be compared across the two models. The grade-specific effects for school commitment (Grade 7) and poor parental supervision (Grade 9) were significant for both models, and effects at other school grade levels for these two variables were nonsignificant. This suggested that grade-specific effects were relatively robust. The effects for parental attitudes favorable to alcohol use were mixed at Grade 5 (significant for steep escalators relative to non-users, nonsignificant for steep escalators relative to slow increasers), nonsignificant at Grade 7 (for both comparisons), and statistically significant at Grade 9 (for both comparisons). At early ages, strong parent disapproval of children’s alcohol use may be an important restraint on escalation of alcohol use, but when alcohol use starts at an early age, other social influences (e.g., peer alcohol use) may become predominant. In relation to the effect for parental attitudes at Grade 9, steep escalators were well-advanced in their alcohol use at this time point (see Table 4). It seems more likely that changes in parental attitudes are a consequence of steep escalation, rather than a driver of escalation of alcohol use around this age, though

the association may be to some extent bidirectional [35]. Similarly, the effect for parental supervision at Grade 9 (but not in earlier grades), may be because parents provide less supervision as a consequence of an upward trajectory of adolescent alcohol use, which may further increase opportunities to consume alcohol.

The findings have several implications for the prevention and early detection of high-risk alcohol trajectories. First, it is clear that markers of subsequent steep trajectories may be evident at very young ages. Though predictive at older ages as well, sibling alcohol use at Grade 5 was one of the strongest predictors during this grade, and it was the only predictor of steep trajectories relative to the slow increaser trajectory. Programs that target the influence of older siblings on younger siblings show promise [24] and are likely to provide an important adjunct to common school and peer-oriented prevention approaches [38]. Second, facilitating school transitions and promoting school commitment in early grades of secondary school may be an important strategy for reducing future escalations in unhealthy behavior. Finally, the findings of this study implicate both family and school factors, pointing to the value of parent-school prevention partnerships [39].

The present study has several strengths, including a longitudinal design that captures the early determinants of growth in alcohol use, low attrition, and an emphasis on time-varying associations. While the study is longitudinal and does examine factors that generally precede alcohol use (notably at Grade 5), causality cannot be determined. Findings may not generalise to adolescents with more clinically significant problems, and the study is limited by its reliance on adolescent self-report data. Sibling age and repeated measures of family intactness were not included in the survey, and these variables may account for the effects found in this study. Data on the frequency of alcohol use at Grade 5 was not collected and trajectories are based on all subsequent wave. The quantity of alcohol use was not surveyed. We were unable to examine school level clustering effects for steep escalation in alcohol use because of insufficient numbers of steep escalators, and because children dispersed from a relatively small number of schools ($N = 55$) with insufficient numbers of students per school, to a large number of schools ($N = 211$) where numbers of students per school became very small.

CONCLUSION

Grade-specific effects for steep escalation in alcohol use were found for low school commitment upon the transition to high school (Grade 7), the presence of a sibling who consumed alcohol (Grade 5, relative to slow increasers), and parental attitudes favorable to alcohol use (Grade 5). Prevention programs may benefit from targeted foci within particular school grades.

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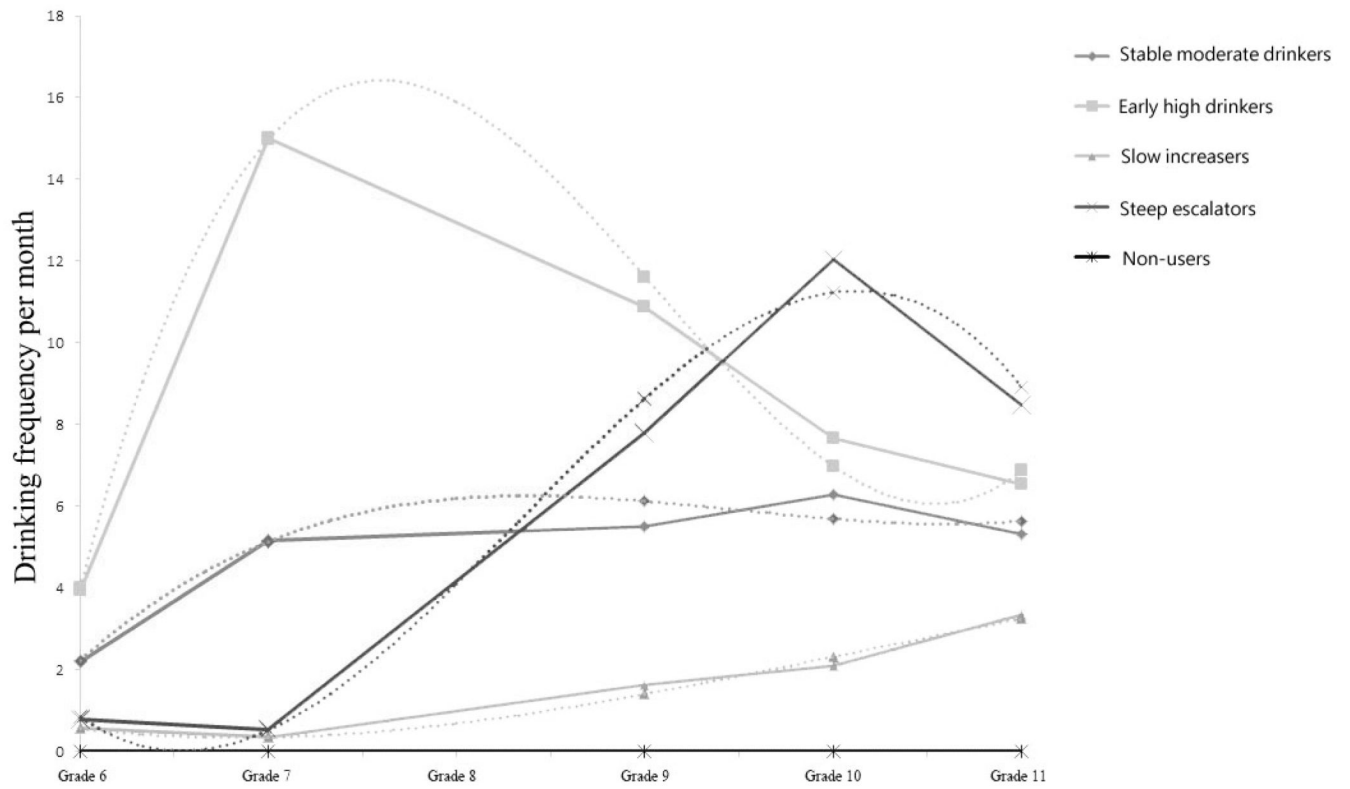


Figure 1. Growth curve trajectories of alcohol use from Grade 6 to Grade 11. Solid lines represent the observed means of alcohol use at each grade for each trajectory class. Dashed lines represent the fitted growth trajectories from the LCGA.

Table 1

Demographics and drinking frequencies of the sample at baseline and each follow-up.

	Grade 5	Grade 6	Grade 7	Grade 9	Grade 10	Grade 11
N	927	916	904	803	825	791
Retention rate %	N/A ^a	98.8 ^c	97.5	86.6	89	85.3
Female (%)	51.9	51.9	51.90	51.90	51.64	51.89
Age (Mean/SD)	10.98 (0.40)	11.94 (0.39)	12.95 (0.39)	15.15 (0.38)	15.99 (0.39)	17.00 (0.41)
Last 30 days drinking frequencies (Mean/ 95% CI) ^d	N/A ^b	0.74 (0.60 - 0.87)	1.18 (0.98 - 1.38)	2.70 (2.41 - 2.98)	3.23 (2.93 - 3.52)	3.65 (3.34 - 3.95)

^aNot applicable because this was the baseline.

^bNot applicable – this measure not available at baseline.

^c1.2% of participants were lost to the second follow-up, which was when the alcohol measure was first used.

Table 2
Fit statistics for 2-7 class models

Class	BIC ^b	SSABIC ^c	Loglikelihood	Prevalence of the smallest group
2	20380.02	20335.56	-10143.15	13.7%
3	19301.97	19241.63	-9587.39	5.6%
4 ^a	18610.57	18534.35	-9224.85	2.9%
5	18219.79	18127.70	-9012.82	2.8%
6 ^a	17908.74	17800.77	-8840.56	2.7%
7 ^a	17548.29	17424.44	-8643.60	0.4%

^aThe best log likelihood values in these three solutions were not replicated in a set of 1000 starting values, indicating these solutions were unstable.

^bBayesian information criterion.

^cSample Size Adjusted Bayesian Information Criterion.

Table 3
Estimated parameters, including the intercepts, linear, quadratic, and cubic terms, for each class within the 5-class model

	Intercept Estimates	S.E.	Linear Estimates	S.E.	Quadratic Estimates	S.E.	Cubic Estimates	S.E.
Class 2	0.548 ***	0.068	-0.541 ***	0.111	0.359 ***	0.061	-0.029 **	0.009
Class 3	2.223 ***	0.407	4.086 ***	0.737	-1.302 **	0.392	0.125 *	0.055
Class 4	3.911 ***	1.132	17.642 ***	1.702	-7.464 ***	0.729	0.810 ***	0.089
Class 5	0.832	0.175	-3.218 ***	0.395	3.378 ***	0.340	-0.482 ***	0.060

 $p < .001$;

**
 $p < .01$;

*
 $p < .05$.

Table 4
Comparison of last 30 days drinking frequencies between steep escalator and slow increasers

	Slow increasers			Steep escalators			Cohen's D
	M	SE	95% CI	M	SE	95% CI	
Grade 6	0.57	0.07	(0.43 - 0.70)	0.76	0.17	(0.42 - 1.10)	0.12
Grade 7	0.33	0.03	(0.28 - 0.38)	0.54	0.09	(0.36 - 0.71)	0.32
Grade 9	1.61	0.08	(1.45 - 1.77)	7.73	0.65	(6.45 - 9.01)	2.42
Grade 10	2.07	0.09	(1.89 - 2.25)	11.90	0.52	(10.88 - 12.91)	4.06
Grade 11	3.34	0.15	(3.03 - 3.64)	8.48	0.70	(7.10 - 9.85)	1.32

Notes. M = mean, SE = Standard error, CI = Confidence Intervals.

Table 5
Odds ratios and 95% confidence intervals from the conditional LCGA, adjusted for demographic variables including age, gender and parents' education

<i>Grade 5</i>	<i>Steep escalators vs non-use</i>		<i>Steep escalators vs slow increasers</i>	
	OR	95% CI	OR	95% CI
Drinking sibling present	3.10 **	(1.60 - 6.01)	2.15 **	(1.28 - 3.60)
Attachment to parents	0.54	(0.29 - 1.00)	0.70	(0.46 - 1.07)
Poor parental supervision	0.47	(0.17 - 1.32)	0.57	(0.25 - 1.29)
Parental attitude favorable to drinking	2.31 **	(1.34 - 3.99)	1.16	(0.87 - 1.54)
Parental attitude * attachment	0.40	(0.13 - 1.25)	0.81	(0.49 - 1.33)
Number of drinking peers	1.97 *	(1.03 - 3.78)	1.13	(0.75 - 1.68)
Low school commitment	1.85	(0.95 - 3.62)	1.43	(0.84 - 2.42)
<i>Grade 7</i>				
Drinking sibling present	2.44 *	(1.21 - 4.90)	1.47	(0.88 - 2.46)
Attachment to parents	1.19	(0.68 - 2.07)	1.19	(0.77 - 1.85)
Poor parental supervision	1.69	(0.69 - 4.14)	1.39	(0.7 - 2.76)
Parental attitude favorable to drinking	1.55	(0.87 - 2.76)	1.19	(0.79 - 1.79)
Parental attitude * attachment	1.11	(0.53 - 2.34)	0.90	(0.5 - 1.63)
Number of drinking peers	1.87 ***	(1.32 - 2.66)	1.24 *	(1 - 1.54)
Low school commitment	2.07 *	(1.07 - 4.01)	2.05 *	(1.18 - 3.59)
<i>Grade 9</i>				
Drinking sibling present	1.36 *	(1.03 - 1.82)	1.19	(0.98 - 1.44)
Attachment to parents	1.55	(0.78 - 3.06)	1.05	(0.63 - 1.76)
Poor parental supervision	3.30 **	(1.40 - 7.79)	1.93 *	(1.02 - 3.69)
Parental attitude favorable to drinking	3.00 ***	(1.80 - 5.01)	1.61 **	(1.15 - 2.25)
Parental attitude * attachment	1.72	(0.88 - 3.34)	1.50	(0.95 - 2.38)
Number of drinking peers	2.64 ***	(1.87 - 3.73)	1.68 **	(1.25 - 2.25)
Low school commitment	1.70	(0.86 - 3.34)	1.52	(0.93 - 2.48)

Note. $p < .001$;

**
 $p < .01$;

*
 $p < .05$. OR = Odd ratio. CI = Confidence interval. Demographic variables (gender, age, mother and father's education) were not significant predictors and so are omitted.