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Emotional Distress, Drinking, and Academic Achievement across the Adolescent Life Course

Timothy J. Owens*,

Department of Sociology, Purdue University

Nathan D. Shippee, and

Department of Sociology, Purdue University

Devon J. Hensel

Section of Adolescent Medicine, School of Medicine, Indiana University

Abstract

Our study of the adolescent life course proposes that substantial maturation occurs within three intertwined arenas of development: the social, the psychological, and the normative attainment. Further, each arena may be linked, respectively, to three youth problem dimensions: drinking, depressive affect, and academic achievement. We use latent growth curves and the Youth Development Study (effective N=856) to track a panel of teens from their freshman to senior year in high school. There are 54.4% girls and 45.6% boys, and 75.7% non-Hispanic whites and 24.3% other races/ethnicities. Two research goals are addressed: (1) estimate each dimension's unique developmental trajectory across high school, and (2) model the dimensions together in order to assess their reciprocal influences. While mean levels in all three dimensions increased over time, distinct developmental patterns were observed, especially in drinking and depression. For example, more drinking occasions—a social activity for most teens—may help assuage some teens' emotional distress, especially girls'. These patterns suggest a synergistic relationship between the social and psychological arenas of development. Contrary to expectation, higher freshman depressive affect was associated with a significantly sharper increase in GPA over time for girls.

Adolescence is a period when some of the most thrilling, challenging, distressing, and consequential aspects of the human experience can be found. It is also a time when adult expectations and a teen's decisions and behaviors take on new urgency as responsibility for one's personal actions increases, the grown-up world comes into sharper focus, and the transition to adulthood beckons (see Bulcroft, Carmody, & Bulcroft, 1996; Hogan and Astone 1986; Marini, 1984). Noteworthy among the concerns of this period—for teens and the adults in their lives—are academic success, emotional distress, and the consumption of alcohol. Taken together, these issues can have important consequences for the developing adolescent.

While a considerable body of research has dealt with these topics singly or sometimes in combination (see Crosnoe, 2006; Robbins & Martin, 1993), relatively little sociological attention has featured an integrative approach utilizing longitudinal, prospective data and methods to track individual-level development across the formative years of high school, roughly ages 15 to 18. In addressing this issue, our study is informed by a life course proposition that substantial adolescent maturation occurs within three important and intertwined arenas of

* Direct correspondence to Timothy J. Owens, Department of Sociology, 700 West State Street, Purdue University, West Lafayette, IN 47907-2059 (towens@purdue.edu).

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engagement and development: the social, the psychological, and the normative (defined here as the socially expected or valued). Moreover, we see each as linked to our particular concerns with youth drinking, depressive affect, and grades.

ADOLESCENT DRINKING, EMOTIONAL DISTRESS, AND ACADEMIC ACHIEVEMENT

Alcohol consumption among American teenagers is a problem behavior and public health concern, especially when it impinges on their emotional well-being and normative attainment. Today, nearly 11 million U.S. teenagers drink regularly, with the majority—7.2 million (67%)—binge drinking (U.S. House of Representatives, 2004). Additionally, 19.5 percent of 8th graders, 42.1 percent of 10th graders, and 57.5 percent of 12th graders report having gotten drunk at least once (Johnston et al., 2006, p. 42). And because the vast majority of teenage drinking is done in group settings and involves peer influence (Crosnoe, Muller, & Frank, 2004; Sieving, Perry, & Williams, 2000), it may be more accurate to view it in terms of reciprocal socialization and peer selection rather than peer pressure (Gaughan, 2006; Windle, 1999). As such, adolescent drinking is characteristic of friendship networks and group life, placing it in the overall social arena of development. Moreover, with U.S. consumer culture actively promoting drinking—and with many teenagers viewing it as a social lubricant, recreational alternative or claim to precocious adult status (see Bachman, Johnston, & O'Malley, 1997; McMorris & Uggen, 2000; Schulenberg et al., 1994)—it is no small wonder teenagers are attracted to alcohol. Additionally, many teens may utilize alcohol for self-medication (Repetto, Zimmerman, & Caldwell 2004): that is, to reduce stress, or cope with various other forms of emotional distress.

Because everyone experiences depressive affect at various times, it constitutes a normal though unwanted human mood state (Compas, Ey, & Grant, 1993). Still, it can be an important signal of possible trouble within one's internal world, external environment or both (see Aneshensel & Phelan, 1999; Rosenfield, Vertefuille, & McAlpine, 2000). According to Holsen, Kraft, & Vitterso (2000), it is also the single best predictor of referral for psychological help. Depressive affect thus carries considerable significance as a marker of distress, whether reported by adolescents themselves or others, such as teachers or parents (McLeod & Owens, 2004). Also, within a given six-month period, girls' self-reports of symptoms of depressive affect range from 25 to 40 percent while boys' range from roughly 12 to 35 percent (Compas et al., 1993, p. 325; Hankin et al., 1998). Although depressive affect remains fairly stable across teenhood for boys, it tends to be curvilinear for girls, rising in early adolescence and then dropping slightly in late adolescence (Holsen et al., 2000).

Normative success in American secondary education, finally, may be viewed in both broad and specific terms (Covington, 1992, 1998). Broadly, academic achievement can be seen as a motivation to learn or to participate in normative adolescent pursuits such as sports, clubs, peer tutoring, and student government (Jenkins, 1995; Mortimer, 2003). It is also often necessary to maintain a C or B average in order to participate in school-sponsored activities. Specifically, school marks (GPA) are widely recognized as a particular manifestation of academic success and school commitment (e.g., Dumais, 2002; Owens, 2005), two widely valued normative endeavors.

Intertwined Arenas of Development

Drinking, emotional distress, and academic achievement represent outward manifestations of the intertwined social, psychological, and normative success-related arenas of adolescent development (for relevant theoretical discussions from a life course perspective see Elder, Johnson, & Crosnoe, 2003; Elder & Shanahan, 2006; and Owens, 2005). We expect them to

discretely and jointly impact the developing adolescent. For instance, Needham, Crosnoe, & Muller (2004) found that emotional distress predicted later class failure and other school problems. Crosnoe (2006) showed that failing classes in one year predicted later alcohol use better than alcohol use predicted later class failures, while Kostecky (2005) reported a negative association between academic achievement and alcohol use (see also Bachman et al., 1997; Diego, Field, & Sanders, 2003; Schulenberg et al., 1994). These findings are also echoed in general strain theory (Agnew et al., 2002) and the broader social stress literature (see Pearlin, 1999), especially in the notion that strain arising in the pursuit of normatively defined success—chiefly when thwarted—may give rise to emotional distress and problem behaviors (including drinking). In short, while grades represent a chance to shine, they can also bring the potential for negative reflected appraisals, unfavorable social comparisons, and poor self-attributions, especially when the evaluator is a person with status or authority, like a teacher or a parent.

For many teenagers, school success is simply not a priority (Covington, 1998; Urdan, 1997). Instead, they may be more oriented to building and maintaining non-educational social networks and having fun, which often takes place in an atmosphere of parties and drinking. Some see this as a manifestation of the precocious development hypothesis (McMorris & Uggen, 2000; Schulenberg et al., 1994), while others see it more plainly as an outgrowth of opportunity structures (Crosnoe & Riegle-Crumb, 2007). The former maintains that high schoolers not particularly oriented toward school (e.g., in getting good grades) may drink as an outward sign of claiming, attempting, or anticipating an early transition to adult status. The latter posits that lower achieving students may simply have more time available to drink because they presumably devote less time to academic pursuits. However, neither proposition is entirely straightforward. Parents might permit greater independence to children who demonstrate—via their school marks—effective problem-solving, time management, diligence, and devotion to a typically valued normative pursuit (Owens, Mortimer, & Finch, 1996). In this case, good grades can bring a measure of freedom that some students can use to drink if they choose.

Gender and Adolescent Problems

Our main analytic goal, tracking adolescent trajectories in the three developmental domains, can be advanced by examining the role of gender in these trajectories. A number of studies indicate that adolescent boys and girls encounter the world and their place in it differently, regardless of SES or race (see Dumais, 2002 for a review). Specifically, because girls generally do not drink as often or as heavily as boys, the styles of deviance perspective suggests that frequent drinking may be more psychologically harmful to girls (Robbins, 1989; Robbins & Martin, 2003). Of course, the fact that girls are less likely to drink to the point of intoxication, or to the point of experiencing other psychosocial problems (such as trouble at school), may serve as a protective factor as well, shielding girls from the worst effects of drinking (Robbins & Martin, 1993). Still, girls may find less support and preparation for alcohol use, raising the potential for increased internalizing problems such as depressive affect and other negative psychosocial consequences.

Relatedly, the “generalized female vulnerability hypothesis” (Brook, Whiteman, & Martin, 1982; Robbins & Martin, 1993) holds that girls are more susceptible than boys to the negative consequences of drinking. First, females have greater physical sensitivity to alcohol because it typically reaches their blood streams quicker and in higher concentrations (Parrott et al., 2004). Second, drinking, especially excessively, may generate more negative reflected appraisals for females than for males (Locke & Newcomb, 2001). Third, violating internalized gender norms of decorum can increase distress for girls who drink frequently or are seen to act foolishly while drinking. Gender differences in the effect of drinking frequency on depressive

affect may also be a function of heightened parental monitoring of girls and a tendency for parents and peers to be quicker to negatively label girls who commit even minor acts of impropriety (Bartusch & Matsueda, 1996; Svensson, 2003). Overall, compared to boys, girls who use alcohol frequently may be more vulnerable to internalizing problems such as depression and anxiety (Rosenfield et al., 2000), in part because they are socialized more for self-regulation and may be more sensitive to negative feedback (Colten & Gore, 1991). Conversely, boys' risk for externalizing problems such as aggression increases with their substance use, in part because their socialization tends to focus more on self-assertion while underemphasizing self-regulation (Leadbeater et al., 1999).

Normative achievement, especially in school, represents a key arena in which gender differences in psychosocial problems may manifest themselves; for instance, Robbins (1989) found that boys' drinking is more likely to result in trouble at school. Overall, girls are more committed to school, join more school clubs and organizations, and earn higher GPAs than boys, regardless of SES (DiMaggio, 1982; Dumais, 2002). However, while Chapple, McQuillan, & Berdahl (2005) found a negative association between commitment to education and problem behaviors for boys and girls alike, they reported no significant gender difference in this relationship. To the extent that gender differences exist, low academic achievement itself may represent greater strain for girls than boys, thus potentially increasing girls' emotional distress, especially if accompanied by increased alcohol use. Lower grades could also make drinking more attractive, especially for girls, or at least open more opportunities for both genders to drink.

HYPOTHESES

This study takes a life course perspective that views adolescent growth in three intertwined arenas of development: the social, the psychological, and the normative attainment. Each arena may also be linked, respectively, to three important adolescent problems operationalized here as monthly drinking occasions, depressive affect, and school marks. Patterns of change and stability are emphasized. The study has two broad research goals and related empirical expectations.

Hypothesis 1

Using latent growth curve modeling to estimate slopes and intercepts, assess each dimension's unique developmental trajectory across high school, with particular attention to gender similarities and differences. Prior research on drinking onset suggests many teens start drinking around 9th grade, so we expect significant intercepts for both genders. We also expect an overall increase in drinking occasions for boys and girls alike, but hypothesize a comparatively slower increase for girls. Girls are also expected to report higher initial levels of depressive affect and higher baseline GPAs, coupled with sharper increases in both over time.

Hypothesis 2

Assess the dimensions' reciprocal influences by modeling the three dimensions together, with particular attention to gender similarities and differences. Overall, we expect that increased drinking occasions will increase emotional distress, especially for girls, and for drinking to generally decrease academic performance for both genders. Since all three variables may form a pernicious cycle, we also expect increased depressive affect to increase drinking occasions as self-medication, while lowering school marks for both genders.

Additionally, we expect normative success to have a protective effect, such that higher grades will decrease drinking occasions. How these relations may vary by gender is not clear-cut, but our earlier discussion suggests that depression's effect on drinking occasions may be greater

for boys than for girls, because of boys' tendency to externalize their problems. Normative success, via good school marks, is further predicted to decrease emotional distress for both genders. However, because doing poorly in school generally runs counter to female gender norms, lower school marks may especially increase emotional distress among girls.

METHODS

Sample

The data come from the Youth Development Study, a longitudinal study of 1,105 randomly selected 9th grader enrolled in the St. Paul (Minnesota) Public School System in the spring of 1988. Prospective subjects were randomly selected from a master list all enrolled 9th graders in the fall of 1987 (see Mortimer 2003, p. 240 for complete details). Active consent was used whereby both the student and his or her parent/guardian agreed to the student's participation in the study. Student subjects were compensated \$10 for participation. Two-thirds of the invitees agreed to participate, or 1,139 of 1,779 randomly drawn cases. A comparison of the selected families to 1980 census data showed that the sample strongly represented of the local population.

The children were re-interviewed annually throughout high school (even if they moved away). During the high school years, group-administered pencil- and-paper surveys were disseminated during school hours. By Wave 4 (12th grade), a mere 7% of subjects had attrited. Moreover, an extensive comparison of stayers and leavers showed little difference between the two groups, although males, non-whites, and children from lower incomes families were somewhat more likely to attrite than others. Nonsignificant predictors of attrition include parental education, parental SES, self-rated ability, occupational aspirations as well as drinking (see Mortimer, 2003; Staff and Mortimer, 2007).

The present research uses data from all four years of high school—grades 9 through 12. This phase of the life course captures an important developmental period and also marks the major risk period for drinking initiation, which peaks at age 18 and is all but over by age 20 (Chen & Kandel, 1995). The average age of first alcohol use is currently about 14 years old (U.S. Department of Health and Human Services, 2006, p.1), the age when many adolescents enter 9th grade.

Slightly less than two-thirds (63.3%) of students identified themselves as white, while 8.6% identified as black or African American, 4% as Hispanic, 11.3% as Southeast Asian (Hmong), 1.1% other Asian, 0.8% as Native American, and 6.2% as multiracial or other. Another 4.8% have unknown race/ethnicity. The effective sample size is 856, excluding the Southeast Asians/Hmong (11.3%, n=129), the attriters (7%, n=71), and those not enrolled in school at one time or another (8.2%, n=83). This leaves 648 whites (75.7%), 98 blacks (11.5%), and 110 other races or ethnicities (12.9%). In terms of gender, there are 466 girls (54.4%) and 390 boys (45.6%). The Southeast Asians were excluded because the vast majority were recently arrived Hmong originally from the hills and mountains of Cambodia and Laos who had been preliterate horticulturists only a few years or months prior to the beginning of the study. Their language and cultural differences (many spoke little or no English) make them quite distinct from their non-Southeast Asian peers.

Measures

The study's three dimensions—all measured at four time-points (9th through 12th grades)—are drinking occasions, depressive affect, and grade point average. Of key concern is the examination of differences by gender in trajectories and the relationships among trajectories. See Table 1 for the variables' descriptive statistics.

Drinking occasions is a single-item variable asking how many times alcohol was consumed in the past 30 days. Responses range from 0=none to 6=40 or more. The 30-day prevalence measure is a widely used benchmark in alcohol research (Bachman et al., 1997; Foster et al., 2003; Windle, 1999). Because the alcohol measure has a skewed distribution, its natural logarithm was used, after first adding a constant (1) so nondrinkers' reports of zero drinking could be taken into consideration.

Depressive affect is measured by a scale in the Health Insurance Study Mental Health Battery (Ware et al., 1979) that is similar to other scales used to measure this construct. The teens reported how many times in the past month they felt downhearted or blue, had been moody and brooded about things, felt depressed, and had been in low or very low spirits. Response options range from 1=no time to 5=all of the time. Like the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), our depressive affect scale is not a clinical intake evaluation. Instead, it is a general measure of depressed mood, including sadness and feeling blue (American Psychiatric Association, 1994). It is scored as a summated ratings scale (alphas ranged from .849 to .896).

Academic achievement, our measure of normative success, comes from each student's self-reported GPA at the time of each survey (typically the second trimester). Responses ranged along a 12-point (A - F) scale of pluses and minuses. Dornbusch, Ritter, & Steinberg (1991) discuss the appropriateness of self-reported grades compared to grades obtained from transcripts, finding a correlation of .79 between the two.

Plan of Analyses

We used latent growth curve (LGC) models, in a structural equation modeling framework, to analyze the data because they allow us to estimate the subjects' *intraindividual* growth trajectories and the group's *interindividual* differences. At the individual level, change is modeled as a function of time. Outcome (Y) for teenager i at time k is a function of that person's expected value on Y at the first point in time (the intercept β_{0i}) and the rate of change in Y per unit of time, indicated by the linear slope of the teen's growth curve or trajectory (β_{1i}). The error term (e_{ik}) represents deviation from the predicted level of Y for a given teenager i at time k . The linear relationship is of the form

$$Y_{ik} = \beta_{0i} + \beta_{1i}t_{ik} + e_{ik}.$$

The underlying patterns in repeated measures are depicted in the individual-level parameters. Analytically, we are most interested in the mean intercept and slope, or the average level and slope of the trajectory across the sample.

At the group level, interindividual differences in the intercept and slope are modeled as a function of predictor variable(s) (X_i), which can be expressed as

$$\beta_{0i} = \gamma_{00} + \gamma_{01}X_i = \mu_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}X_i = \mu_{1i}.$$

In order to utilize all the available data, our models were estimated using full-information maximum-likelihood (FIML) estimation in AMOS 7.0. FIML estimates yield parameters that are consistent and efficient under the assumption that the data are missing at random or

completely at random (Bollen & Curran, 2006). Though we cannot assume randomness of attrition, the high retention rate of YDS subjects during the high school period is reassuring.

The analyses were carried out in two steps. The first step addresses Hypothesis 1 (assess each dimension's unique developmental trajectory across high school, with particular attention to gender similarities and differences). The second step addresses Hypothesis 2 (assess the dimensions' reciprocal influences by modeling the three dimensions together, with particular attention to gender similarities and differences). In doing so, we focus on the growth trajectories of our three key dimensions—drinking occasions, depressive affect, and school marks—both separately and in combination. The first step involved estimating separate univariate growth curves for each dimension, thus providing information about the developmental patterns of each. The results are reported in Table 2 for the total sample and by gender.

The second step involved estimating the three domains in an unconditional triple-trajectory growth curve emphasizing gender differences. As discussed earlier, gender is a conditioning variable because of girls' and boys' differential experiences in the intertwined social, psychological, and normative arenas of adolescent development. A conceptualization of the modeling is shown in Figure 1. Our key interest here is the cross-arena covariances (signified by bold double-headed arrows). They demonstrate how the mean intercept and slope(s) factors of one dimension are related to the mean intercept and slope(s) factors of another dimension. Specifically, intercept and slope covariances give a time-ordered characterization of how baseline values of one dimension (X) affect patterns of growth over time in a second dimension (Y), while controlling for the effect of a third dimension (C). Slope covariances indicate how the dimensions move together through time. Finally, crosslagged paths (signified by regular single-headed arrows) are included between the observed time points of one variable and the subsequent observation points of all other variables. We can thus examine how, for example, depressive affect in 9th grade directly influences GPA in 10th grade, *net of* growth in grades over time. The step two results are reported in Table 3.

Gender differences were assessed with nested likelihood ratio tests. For example, when, in a multigroup “stacked” model with both genders estimated simultaneously, a parameter of interest (c) is constrained to be equal across groups is compared to a freely estimated model with no such constraint (f), the probability of the difference (d) is:

$$\frac{\chi_c^2 - \chi_f^2}{df_c - df_f} = \frac{\chi_d^2}{df_d}$$

A significant χ_d^2 indicates that a statistically significant difference exists between boys and girls for the parameter of interest.

RESULTS

Unconditional Single-Trajectory Latent Growth Curve Models: Main Effect of Gender

The first step's results—estimating the three dimensions as unconditional single-trajectory models—speak to Hypothesis 1 and are reported in Table 2. To streamline the discussion, only statistically significant parameters and gender differences are generally discussed; otherwise, the composite total panel parameters will be highlighted.

Turning first to drinking occasions, and based on nested likelihood ratio tests of the linear and quadratic models, a three-factor nonlinear model (i.e., intercept, linear slope, and quadratic slope)—represented the best overall fit to the data. Furthermore, the three specific unconditional univariate models all fit the data quite well: drinking occasions' CFI is a

maximum 1.000 and the RMSEA is a low .043; depressive affect's CFI is also 1.000 and the RMSEA is a very low .001; and GPA's CFI is a high .992 and the is a low RMSEA .050.¹

As expected, the findings show low yet significant baseline mean drinking occasions for boys and girls alike (composite intercept $M = .491, p < .001$); this translates to approximately one-half logged-unit of drinking occasions within the past 30 days. The intercept variance indicates measurable *interindividual* variation in initial mean drinking occasions (composite intercept $var = .184, p < .001$). The linear slope average indicates that the teenagers tended to gradually increase their drinking frequency during high school (composite linear slope $M = .060, p < .01$), while its variance again points to noteworthy *interindividual* variation in linear slopes across high school (composite linear slope $var = .134, p < .01$). The pattern is consistent with the expectation that mean drinking occasions would increase over high school for both genders, but the lack of gender differences was not expected.

Somewhat surprisingly, the quadratic factor was not significant but its variance was (composite linear slope $var = .010, p < .05$). This suggests that even though no meaningful *average*, or group-level, increase in nonlinear change was observed over time, there was nonetheless significant *individual variation* in change acceleration. (This is not uncommon. It basically means that there is not enough similarity in developmental acceleration to nail down a meaningful average. Effectively, most are changing at different rates.) Continuing, drinking's negative intercept/linear slope covariance (composite $cov = -.063, p < .05$) indicates that adolescents who initially drank more at baseline had slower linear growth in their drinking over high school than their peers who drank little or nothing at baseline. Finally, the negative linear slope/quadratic slope covariance (composite $cov = -.034, p < .01$) supports the notion that higher linear growth in drinking occasions over time was associated with a decelerated nonlinear increase. That is, adolescents who reported a more steady progression in drinking occasions over time (i.e., had a greater linear increase) also tended to report smaller nonlinear additions in their drinking occasions (i.e., a deceleration) compared to teens who drank less in high school.

Turning next to the single-trajectory depressive affect model, a three-factor nonlinear model again represented the best overall fit to the data. The only significant gender differences appeared in the intercepts, where freshman girls reported significantly higher baseline depressive affect (intercept $M = 10.579, p < .001$) than boys (intercept $M = 9.345, p < .001$), as expected. The overall intercept variance (composite intercept $var = 5.217, p < .001$) indicates significant *interindividual* variation in baseline depressive affect. The significant linear slope mean (composite linear slope $M = .284, p < .01$) suggests that, on average, depressive affect increased during high school; but the fact that the boys' slope was significant (linear slope $M = .385, p < .05$) and the girls' was not (linear slope $M = .179, ns$) is somewhat surprising.²

However, the quadratic slope's mean was not significant (composite quadratic slope $M = -.058, ns$) but its variance was (composite quadratic slope $var = .448, p < .001$). Again, the latter, significant for both genders, denotes significant *inter-individual* variation in acceleration of depressive affect, while the former signifies that no meaningful over-time *interindividual* acceleration averages were discernable. Finally, the only significant covariance was for linear

¹The RMSEA assesses how well a model with unknown though optimally chosen parameter estimates would fit the population covariance matrix (Browne & Cudeck, 1993). Values below .08 but especially below .06 indicate a well-fitting model (Browne & Cudeck, 1993; Hu & Bentler, 1999). The CFI ranges from 0 (no fit) to 1.00 (excellent fit) and compares a hypothesized model with an independence model. The IFI compares the discrepancy and the degrees of freedom for the theoretical model to the discrepancy and the degrees of freedom for the baseline model. Values close to 1 indicate a very good fit.

²However, this does not mean the complete lack of a substantively meaningful effect among girls; rather, coupled with a significant slope *variance*, it suggests that even though no meaningful *average*, or *group-level*, change was observed for girls, there was nonetheless significant *individual* variation in change among girls

slope/quadratic slope (composite $cov = -1.244, p < .001$), suggesting that teens who experienced sharper linear increases in depression over time were subject to increasingly smaller nonlinear adjustments to depression change over time. This is important because it implies that depressive affect increased rather steadily over time (a form of stability) rather than accelerating at different rates (a form of instability).³ Although the gender differences were not statistically significant at the conventional .05 cut-off as predicted, the boys' parameter was significant ($cov = -1.796, p < .001$) but the girls' was not ($cov = -.778, ns$). Again, this points to the lack of a *group* level effect for girls, as the covariation *mean* was not significant, but the covariation *variance* was.

Lastly, the single-trajectory GPA model is best represented by a two-factor linear model. As expected, freshman girls reported modest though significantly higher initial mean GPAs (intercept $M = 7.553, p < .001$) than boys (intercept $M = 7.260, p < .001$). This translates to roughly a B- average for girls and a C+ average for boys. Both genders reported significant though equivalent intercept variances (composite $var M = 3.796, p < .001$), indicating measurable individual variation in baseline GPAs. However, girls reported a significantly higher mean slope (slope $M = .267, p < .001$) than boys (slope $M = .128, p < .001$), thus denoting that while GPA was apt to increase during high school for both genders, the linear increase was sharper for girls, as we originally expected. The slope variances for both genders indicate significant individual variation from baseline to 12th grade (composite $var M = .212, p < .001$). As generally expected, girls had a significantly negative intercept/slope covariance ($cov = -.295, p < .01$) but boys did not ($cov = -.090, ns$). This indicates that girls who started senior high with lower GPAs typically had more pronounced increases in their GPAs over time, compared to their higher performing gender peers. This could signify an effort to hew more closely to female performance standards.

Unconditional Triple-Trajectory Latent Growth Curve Model: Main Effect of Gender

The second step's results—estimating the three domains together in a triple-trajectory model—speak to Hypothesis 2 and are reported in Table 3. Here, the covariances between the three latent factors were estimated together in order to examine their interrelationships over time; that is, to reveal how levels at baseline and subsequent change in one variable are associated with initial levels and changes in the others. In order to facilitate discussion, two reporting conventions are used. First, statistically significant gender differences are again emphasized; otherwise, the composite parameters are typically noted. Second, in order to make the results more comprehensible, the findings in the upper portion of the table ("Latent Factor Covariances") are presented as variable pairs even though covariances between all eight latent factors were estimated simultaneously (resulting in 28 covariances; see Figure 1). This means, for example, when estimating the covariance for the intercepts of drinking occasions and depressive affect, the intercept of GPA is controlled. Similarly, in the intercept-slope covariances for depressive affect and GPA, the slope of drinking occasions is controlled, and so forth. The advantage of this approach is being able to discuss each variable-pair's mutual effect *net* of the influence of the third variable. Finally, five of the 21 gender comparisons were significant, well above the level of chance.

Crosslagged paths were also added between the observed measures for all variables. These enabled us to examine the fixed, time-lagged reciprocal associations between two variables beyond change effects associated with developmental change. That is, latent growth factors represent change accounting for all time points simultaneously, but time-lagged reciprocal effects allow us to isolate the change between two specific time points.

³Alternatively, this suggests those who had steeper increases in depressive affect "stabled out" (i.e., reached the top of the quadratic curve) more quickly than those with a less steep linear depression slope.

Drinking Occasions and Depressive Affect—At baseline, more drinking occasions were associated with significantly higher baseline depressive affect for both genders (composite intercept/intercept $cov = .254, p < .001$) as expected; but contrary to expectation, the strength of the association was not significantly stronger for girls. Alone, this could indicate the beginning of a gender-neutral pernicious cycle of depressive affect and drinking occasions. However, without accounting for developmental change across time, such a conclusion is tentative at best. Indeed, the significant relationships between the intercept of drinking occasions and the linear and quadratic slopes of depressive affect show a different, somewhat surprising picture. Those who drank *less often* at baseline reported *slower increases* in depressive affect over time (composite intercept/linear slope $cov = -.165, p < .01$). But, the mean increases in depressive affect for the low baseline drinkers became *increasingly larger* between measurement intervals (composite intercept/quadratic slope $cov = .034, p < .05$).⁴ That is, as those who drank less often at the beginning of high school moved through time in terms of both age and grade, their average reports of depressive affect tended to “rocket up” at increasingly steeper rates. Moreover, this nonlinear acceleration in depressive affect was significantly stronger for girls ($cov = .051, p < .05$) versus boys ($cov = .013, ns$).

Looking at the variables as they moved together through time (i.e., the reciprocal influences of their slopes), girls whose drinking occasions increased at a faster rate during high school generally reported slower growth in depressive affect over time (girls’ linear slope/linear slope $cov = -1.372, p < .001$; boys’ $cov = -.688, ns$). Furthermore, girls whose drinking occasions increased at a faster nonlinear rate during high school reported average increases in depressive affect that got increasingly smaller between measurement intervals (girls’ quadratic slope/quadratic slope $cov = -.153, p < .01$). While the same trend was observed for boys, it was significantly weaker (boys’ $cov = -.063, p < .01$). Both of these findings are contrary to our expectation that increased drinking occasions would increase emotional distress, especially for girls.

Looking at the effect of depressive affect on drinking occasions, on average, those who reported higher baseline depressive affect had steeper linear increases in drinking occasions over time (composite intercept/linear slope $cov = 1.669, p < .001$). However, this increase in drinking occasions got increasingly *smaller* between measurement intervals (composite intercept/quadratic slope $cov = -.848, p < .001$). This may suggest a “ceiling effect” inasmuch as this is a normal school-based population and not a clinical population, so increases in drinking may still have been bounded by broader drinking norms. Focusing on how depressive affect and drinking occasions covaried across time, those whose depressive affect increased at a faster linear rate during high school reported average *increases* in drinking occasions that became increasingly larger between measurement intervals (composite linear/quadratic slope $cov = .562, p < .001$), as expected. Contrary to our expectation, however, the effect was not stronger for boys. Finally, the significant crosslagged effect points to a single time-specific association: higher 9th grade depressive affect predicted fewer 10th grade drinking occasions for both genders (composite $\beta = -.091, p < .001$), which is consistent with the growth curve findings. By the end of high school, however, the time-specific association all but disappeared in significance.

Our findings suggest two things. First, depressive affect, whether higher at the outset of high school or whether increasing during high school, tended to be accompanied by more drinking occasions over time. This implies the proposition that some distressed youths may seek some solace in drinking or in the teen sociality that tends to accompany it. Second, taking all findings for the drinking-depressive affect nexus into account, we see little support for the “pernicious cycle” proposition that distress increases drinking and drinking further increases distress.

⁴The negative covariance must be read in the variables’ original metrics. Since both increase over time, a negative covariance speaks to the *less steep* increase over time.

Drinking Occasions and GPA—Although no statistically significant gender differences were found here, other findings are noteworthy. At baseline, more frequent mean drinking occasions were associated with higher mean baseline GPA (composite intercept/intercept $cov = .086, p < .05$), a seeming contradiction of expectation. However, the expectation of a negative relationship between drinking and GPA was partially supported for boys. On average, for males, more baseline drinking occasions were followed by lower linear increases in subsequent GPAs (boys' intercept/linear slope $cov = -.033, p < .05$; girls' $cov = -.014, ns$). However, because there was no statistically significant difference in the preceding two findings, we cannot say definitively that early drinking hurt boys' later academic achievement more than girls'. Still, we did not find a significant link between increased drinking across high school and diminishing ongoing academic achievement, contrary to the expectation (composite linear slope/linear slope $cov = -.018, ns$).

Look now at the effect of GPA on drinking occasions. On average, increased baseline GPA was associated with a significant deceleration in drinking occasions over time for both genders (composite intercept/quadratic slope $cov = -.205, p < .05$). This supports our expectation that pursuing academic achievement would have a protective effect on drinking. However, examining how the variables moved together through time, teens whose GPAs increased at a faster linear rate during high school reported drinking occasions which became *increasingly more frequent* as they progressed in age and grade (composite linear slope/quadratic slope $cov = .028, p < .05$). This recalls our earlier observation that good grades can bring a measure of parental freedom that some students can use to drink if they choose.

Turning to the crosslagged effects, 9th grade drinking occasions were negatively associated with 10th grade GPA (composite $\beta = -.642, p < .001$); additionally, 9th grade GPA was negatively associated with the numbers of 10th grade drinking occasions (composite $\beta = -.056, p < .001$). The same pattern continues through 10th and 11th grade. Specifically, a smaller number of 10th and 11th grade drinking occasions, respectively, were associated with higher GPA in 11th grade (composite $\beta = -.401, p < .001$) and 12th grade (composite $\beta = -.417, p < .001$). This comports with the growth curve findings. Additionally, higher 10th and 11th grade GPAs were associated with a greater number of drinking occasions in 11th grade (composite $\beta = .041, p < .001$) and 12th grade. In this latter timeframe, the effect was significant and higher for girls ($\beta = .078, p < .01$) versus boys ($\beta = .021, ns$).

Depressive Affect and GPA—On average, higher baseline depressive affect was associated with significantly lower baseline GPA for both genders, as expected. The association was also significant and stronger for girls (intercept/intercept $cov = -1.622, p < .05$) versus boys ($cov = -.477, ns$). Contrary to expectation, however, higher freshman depressive affect was associated with a significantly sharper increase in GPA over time for girls (intercept/linear slope $cov = .192, p < .05$) versus boys ($cov = -.052, ns$). However, this seeming counter-finding must be tempered by noting that our depressive affect construct is not a measure of depression per se, a potentially more disruptive psychological state. Yet if we acknowledge instead that depressive affect is closely linked to low self-esteem (Rosenberg & Owens, 2001), this finding comports with Covington's (1992) argument that some distressed teens—in this case girls—may actually be motivated toward increased academic achievement in an effort to prove their worth to self and others.⁵

Finally, and contrary to expectation, no significant relationships were observed between GPA and depressive affect trajectories. It seems that academic achievement bears little influence on these teens' feelings of emotional distress. Also, there was only one significant crosslagged finding: the positive path from 9th grade depressive affect to 10th grade GPA (composite $\beta = .$

⁵In our data, the mean correlation between depressive affect and self-deprecation across the high school years is .545 ($p < .01$)

035, $p < .001$). This may suggest that, unlike other relationships, the association between depressive affect in GPA is governed more by developmental, rather than time-fixed, or incremental effects.

DISCUSSION AND CONCLUSION

This study is informed by the life course proposition that substantial adolescent growth occurs within three intertwined arenas of development—the social, the psychological, and the normative attainment. Further, each arena may be linked, in turn, to three important adolescent problems, operationalized here as drinking occasions, depressive affect, and school marks. This study has two broad research goals and related two hypotheses. To assess Hypothesis 1, we examined gender similarities/differences through a single-trajectory model for each outcome variable, thus assessing their unique developmental trajectories from middle to late adolescence. Overall, these models showed that, on average, number of monthly drinking occasions, depressive affect, and GPA increased across high school, but the dimensions showed different patterns of change, especially the nonlinear increases in drinking occasions and depressive affect. The picture that emerges is one in which teens seem to increase their socially-oriented behavior and improve their focus on normative attainment, yet face greater psychological distress, as the storm and stress theory of adolescence has long held.

The gender differences in trajectories reveal a somewhat more complex story, particularly for depressive affect and GPA. Girls had more initial problems in the psychological arena (i.e., depressive affect intercept), on average, but they also were more focused initially on academic achievement, which they sustained throughout high school. Indeed, girls who began high school with mean GPAs lower than other girls had the sharpest increase in school marks over time, reflecting their increased conformity to female gender norms.

Per Hypothesis 2, we assessed the three domains together in a triple-trajectory model. This allowed us to evaluate their reciprocal influences, again with attention to gender similarities/differences. Here, the developmental patterns in drinking occasions and depressive affect showed mixed support for our expectations. Controlling for GPA, boys and girls with higher baseline depressive affect not only reported more initial drinking occasions, but also exhibited greater *linear* increases in drinking over time than their less depressed peers, as expected. This points to a possible “self-medication” motive (as per Repetto et al., 2004) in that distressed teens were involved in more drinking *occasions*, whether the sociality surrounding most teen drinking or alcohol itself was the main attraction. However, higher baseline depressive affect also led to a sharper *nonlinear* decrease in drinking occasions over time for both genders. This suggests a possible ceiling effect, since those who drank more often also *started* with higher mean depressive affect.

Girls who had more baseline drinking occasions actually reported shallower average increases in depressive affect over time, and the increases got increasingly smaller as they progressed in age and grade. It appears that more drinking occasions—a social activity for most teens—may help assuage some teens’ emotional distress, especially girls’. Following this, boys and girls whose drinking occasions increased at a faster nonlinear rate during high school reported average increases in depressive affect that got increasingly *smaller* between measurement intervals, contrary to what we expected. Moreover, the association was stronger for girls than for boys. The important point is that we measured drinking *occasions*, not whether they sipped or guzzled their alcohol. Controlling for normative attainment, these patterns suggest a synergistic relationship between the social and psychological arenas of development. These findings also challenge the generalized female vulnerability hypothesis and the notion that boys would externalize their distress by drinking more than distressed girls (Leadbeater et al., 1999; Rosenfield et al., 2000).

In terms of the relationship between normative attainment and the social arenas—a key concern for those interested in the social bond and precocious development hypotheses (e.g., McMorris & Uggen, 2000)—our findings again only partially supported our expectation that GPA and drinking would be negatively associated. Because initial levels of GPA were associated with more initial drinking occasions for both genders equally (contrary to expectation), but higher GPA was associated with sharper deceleration in girls' drinking episodes over time, the link between the social arena and the normative arena seems to be stronger among girls than boys. As noted previously, girls' stronger orientation toward school (Dumais 2002) may provide a key incentive for making careful choices about their social activities (and drinking in particular).

The opportunity structures hypothesis (see Crosnoe & Riegle-Crumb, 2007) seems to be more directly applicable; higher academic achievers may be granted more freedom, which they may use for drink occasions. The grosser cross-lagged effects bear this out: for all paths but the earliest one, GPA positively influenced drinking in the next year, above and beyond developmental effects. Yet the consequences of drinking significantly hurt GPA in every cross-lagged path, while the overall developmental effect of higher baseline drinking actually slowed boys' average academic achievement but not girls'. This finding again challenges notions of female vulnerability, which assumes that girls would be more adversely affected by drinking.

Still, the positive relationship between baseline drinking occasions and nonlinear depressive affect for girls only lends some support to the styles of deviance perspective. It supposes that girls who drink, especially frequently, may receive harsher reflected appraisals and social comparisons for which they may be less prepared and thus experience more distress (Robbins & Martin, 2003). Conversely (although we did not measure drinking amounts), because boys tend to drink more heavily and more frequently to intoxication than girls (Robbins, 1989; Robbins & Martin 1993), it is not entirely unintuitive to find that more drinking occasions interfered with boys' academic achievement but not girls'—a finding compatible with the styles of deviance perspective. Alternatively, boys may simply be more receptive to or encouraged toward engaging in the social environment that surrounds drinking for most teens, which fits with earlier findings on girls' stronger orientation toward school (DiMaggio, 1982; Dumais, 2002).

Finally, the relationship between depressive affect and GPA, controlling for drinking occasions, offers some notable patterns. As generally expected, higher baseline depressive affect was associated with a significantly lower baseline GPA for girls. Longer term, however, the reverse was observed: higher baseline depressive affect actually predicted a steeper *increase* in normative attainment over time, but again only for girls. This represents an enduring conundrum in education research (e.g., Covington, 1992) showing a significant number of higher achievers actually suffer from low self-esteem, a strong correlate of depressive affect (Rosenberg & Owens, 2001). While the exact mechanism is unknown, we offer two hypothesizes. First, feeling down may actually motivate some to seek the intrinsic and extrinsic rewards of socially valued academic achievement, especially in the relative solitude of one's studies (as per Covington, 1992). Second, parents and teachers may push for achievement when a teen expresses distress.

Overall, our findings emphasize the importance of studying the joint effects of the social, the psychological, and academic achievement arenas of adolescent life course development. We found evidence for the drinking opportunity structures hypothesis: while many teens may simply tend to drink when they can, those who invest the time and the effort to get good grades presumably have less time for drinking occasions. (The exception was in the positive relationship between frequency of 9th grade drinking and 9th grade GPA.) This implies a strong cultural imperative toward drinking as an adult behavior, and, for the most part, refutes

conceptions of this particular behavior being especially *deviant* in the fullest sense of the term. Still, that does not mean that drinking is unproblematic, especially depending on the life-circumstances in which teens turn to the social atmosphere surrounding most of their drinking.

With this complexity in mind, our research has some important practical implications as well. First, the positive covariance for the intercept of grades and drinking (higher initial drinking and higher initial GPA) suggests that schools and parents should not only be concerned with drinking or other potentially problematic behaviors among lower-achieving students, but should also maintain vigilance among more scholastically successful teens perhaps afforded more autonomy for fulfilling this important social norm. Second, although initial levels of drinking and depressed mood are positively related, the negative relationship between their slopes among girls, compared to a non-significant relationship among boys, suggests that girls may adapt their drinking styles more successfully than boys. Consequently, boys may especially benefit from educational programs encouraging safer drinking behaviors. Finally, and in a somewhat related vein, the harmful effects of initial depressed mood on initial GPA were stronger among girls, but initial depressed mood was actually associated with a *steeper increase* in GPA for among girls only. Girls' adaptations in the arena of normative achievement may be a model to study and follow while also begging the question: How do girls seemingly overcome this negative emotional state and succeed in school in a way that boys do not? Drawing from the particular social and behavioral experiences of one gender may offer clues to helping the other.

Three study limitations are noteworthy. First, although one-quarter of the subjects were nonwhite, our sample size prevented in-depth examination of specific racial/ethnic differences in the drinking-depression-achievement nexus. A larger sample would have also allowed us to examine cross-status differences, such as black males, high SES girls, and so on. Second, our measure of drinking was limited number of drinking occasions. This may underestimate the short- and longer-term consequences that drinking has on depressive affect and academic achievement. Quantity drunk would also provide clearer indications of intoxication and binge or problem drinking on adolescent short- and long-term moods and achievement trajectories. Third, our data contained no information on attitudes toward drinking or on the particular settings—social or otherwise—in which the imbibing teens drank. Future research on these issues is warranted.

These limitations notwithstanding, our study demonstrates the usefulness of addressing the development of adolescent health and well-being through the interconnected social, psychological, and academic attainment arenas of development, and then linking them to specific outcomes: i.e., drinking occasions, depressive affect, and school marks. Latent growth curve modeling also afforded pointed assessments of developmental patterns and theoretically-described processes over time, while also making explicit gender comparisons. The analytic elegance of the latent growth curve modeling approach is also evident in these results, inasmuch as it highlighted the interrelated relevance of social (and health-risk) behavior, academic achievement, and psychological well-being during a key time of the life course: mid- to late-adolescence.

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FIGURE 1.

Conceptual Triple-Trajectory Latent Growth Curve Model of Drinking Occasions, Depressive Affect, and GPA.

Note: (a) Cross-arena covariances are illustrated by bold double-headed arrows. For illustration purposes, only three of the total 28 of these paths are shown.

(b) Within-arena covariances are represented by regular double-headed arrows.

(c) Crosslagged correlations are shown as regular single-headed arrows.

(d) Latent factors loadings are shown as dotted arrows (1,1,1,1 for intercepts; 0,1,2,3 for slopes, 0,1,4,9 for quadratics).

(e) The observed variable error terms have also been covaried at similar time points (e.g., throughout 9th grade) but are not shown in the figure.

TABLE 1

Descriptive Statistics for Variables in the Analyses

	<u>Range</u>	<u>Mean</u>	<u>α</u>
9th Grade			
Drinking Occasion	0-6	.968 (1.369)	.849
Depressive Affect Scale	4-20	10.003 (3.265)	
GPA	1-12	7.372 (2.498)	
Gender	0=boy, 1=girl	.470 (.500)	
10th Grade			
Drinking Occasion	0-6	1.066 (1.316)	.873
Depressive Affect Scale	4-20	10.233 (3.305)	
GPA	1-12	7.738 (2.339)	
11th Grade			
Drinking Occasion	0-6	1.094 (1.378)	.896
Depressive Affect Scale	4-20	10.278 (3.356)	
GPA	1-12	7.876 (2.308)	
12th Grade			
Drinking Occasion	0-6	1.099 (1.306)	.884
Depressive Affect Scale	4-20	0.316 (3.162)	
GPA	1-12	8.309 (2.283)	

Note: Standard deviations are in parentheses.

TABLE 2
Unconditional Univariate Growth Curves (Unstandardized Coefficients)

Variable	Intercept		Linear Slope		Quadratic Slope		Intercept/ Slope		Intercept/ Quadratic Slope		Linear Slope/ Quadratic Slope	
	Mean	Variance	Mean	Variance	Mean	Variance	Cov		Cov		Cov	
Drinking Occasions	.491 (.018)***	.184 (.036)***	.060 (.024)**	.134 (.048)**	-.011 (.007)	.010 (.048)*	-.063 (.040)*	.012 (.010)	-.034 (.012)**			
Boys	.496 (.028)***	.161 (.058)***	.082 (.037)**	.115 (.079)**	-.011 (.011)	.009 (.058)	-.038 (.018)	.006 (.016)	-.030 (.021)**			
Girls	.485 (.024)***	.201 (.045)***	.042 (.030)**	.147 (.058)**	-.011 (.009)	.010 (.004)*	-.083 (.004)*	.016 (.012)	-.037 (.015)**			
Depressive Affect	9.992 (.102)***	5.217 (1.133)***	.284 (.134)**	4.164 (1.525)**	-.058 (.042)	.448 (.152)***	-1.029 (1.252)	.097 (.308)	-1.244 (.398)***			
Boys	9.345 (.139)***	4.622 (1.498)**	.385 (.196)*	5.786 (2.074)**	-.076 (.061)	.613***	2.037 (1.621)	.488 (.408)	-1.796 (.488)***			
Girls	10.579 (.147)***	4.778 (1.620)**	.179 (.184)	2.516 (2.194)	-.038 (.444)	.305 (.171)***	2.192 (1.789)	-.293 (.444)	-.778 (.571)			
GPA	7.407 (.091)***	3.796 (.256)***	.205 (.025)***	.212 (.037)***	na	na	-.198 (.075)**	na	na			
Boys	7.260 (.110)***	3.796 (.393)***	.128 (.037)***	.164 (.059)***			-.090 (.164)**					
Girls	7.553 (.008)***	3.729 (.332)	.267 (.033)***	.245 (.047)			-.295 (.097)**					

Fit statistics: Alcohol use- $\chi^2(df) = 1.211(1)$, IFI/CFI = 1.000, RMSEA = .043; depressive affect- $\chi^2(df) = .093(1)$, IFI/CFI = 1.000 RMSEA = .001; GPA- $\chi^2(df) = 17.693(5)$, IFI = .992, RMSEA = .050.

Note: Standard errors in parentheses. Boxed cells indicate that gender parameters are significantly different at $p < .05$.

* $p < .05$

** $p < .01$

*** $p < .001$ (two-tailed tests)

TABLE 3
Unconditional Triple-Trajectory Growth Curve Model (Unstandardized Coefficients)

Latent Factor Covariance	Drinking Occasions (A) and Depressive Affect (B)	Drinking Occasions (A) and GPA (B)	Depressive Affect (A) and GPA (B)
Intercept A/Intercept B	.254 (.044)***	.086 (.030)*	-1.008 (.244)***
Boys	.216 (.061)***	.098 (.018)*	
Girls	.257 (.061)***	.086 (.038)*	-4.77 (.335) -1.622 (.338)*
Intercept A/Linear B	-.165 (.065)**	-.019 (.007)	.177 (.084)*
Gender			
Boys	-.097 (.055)	-.033 (.010)*	
Girls	-.186 (.166)*	-.014 (.008)	.052 (.114) .192 (.118)*
Intercept /Quadratic B	.034 (.017)*	na	na
Gender			
Boys			
Girls	.013 (.026) .051 (.022)*		
Linear A/Linear B	-1.048 (.264)***	-.018 (.034)	-.145 (.126)
Gender			
Boys	-.688 (.394)	-.043 (.010)	-.122 (.192)
Girls	-1.372 (.359)***	-.030 (.045)	-.186 (.185)
Linear A/Quadratic B	.213 (.068)**		
Gender			
Boys			
Girls	.114 (.103)*** .284 (.092)***		
Quadratic /Quadratic B	-.116 (.040)**	na	na
Gender			
Boys			
Girls	-.063 (.061)* -.153 (.052)**	na	na
Intercept B/ Linear A	1.669 (.296)***	.172 (.151)	-.248 (.497)
Boys	1.202 (.400)***	.173 (.222)	-.489 (.728)
Girls	1.943 (.400)***	.224 (.201)	-.177 (.664)
Intercept /Quadratic A	-.848 (.149)***	-.205 (.082)*	.167 (.172)
Boys	-.656 (.200)*	-.212 (.123)	.225 (.250)
Girls	-.924 (.203)***	-.220 (.108)*	.028 (.232)
Linear B/Quadratic A	.562 (.147)***	.028 (.018)*	-.004 (.039)
Boys	.369 (.221)	.050 (.006)*	.004 (.059)
Girls	.706 (.199)***	.028 (.003)*	.002 (.051)
Crosslagged Effects			
Grade 9 (A) - Grade 10 (B)	.105 (.183)	-.642 (.111)***	.035 (.010)***
Boys	.159 (.244)	-.702 (.152)***	.037 (.010)**
Girls	.081 (.272)	-.598 (.162)***	.037 (.015)*
Grade 9 (B) - Grade 10 (A)	-.091 (.016)***	-.056 (.014)***	.035 (.055)
Boys	-.081 (.026)**	-.050 (.021)**	.014 (.075)
Girls	.097 (.082)**	-.070 (.020)***	.040 (.082)
Grade 10 (A) - Grade 11 (B)	.218 (.263)	-.401 (.108)***	.008 (.015)
Boys	-.045 (.337)	-.371 (.164)**	-.009 (.024)
Girls	.567 (.408)	.429 (.142)***	.026 (.080)
Grade 10 (B) - Grade 11 (A)	.008 (.011)	.041 (.013)	.047 (.055)
Boys	.026 (.017)	.040 (.017)	.040 (.074)
Girls	-.007 (.014)	.038 (.017)*	.057 (.080)
Grade 11 (A) - Grade 12 (B)	.295 (.431)	-.417 (.153)***	.036 (.074)
Boys	-.125 (.559)	-.529 (.224)**	.048 (.074)
Girls	.829 (.659)	-.228 (.206)***	.049 (.079)*
Grade 11 (B) - Grade 12 (A)	-.003 (.010)	.049 (.013)***	-.003 (.010)

<u>Latent Factor Covariance</u>	<u>Drinking Occasions (A) and Depressive Affect (B)</u>	<u>Drinking Occasions (A) and GPA (B)</u>	<u>Depressive Affect (A) and GPA (B)</u>
Boys	-.005 (.017)	.021 (.019)	-.019 (.033)
Girls	.001 (.012)	.078 (.018)**	-.053 (.020)
Fit Indices: χ^2 (df) = 53.544 (16), IFI = .988, RMSEA = .048			

Note: Standard errors in parentheses. Boxed cells indicate that gender parameters are significantly different at $p < .05$.

*
 $p < .05$

**
 $p < .01$

 $p < .001$ (two-tailed tests)