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Adolescent Work Intensity, School Performance, and Substance Use: Links Vary by Race/Ethnicity and Socioeconomic Status

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Abstract

High school students who spend long hours in paid employment during the school year are at increased risk of lower grades and higher substance use, although questions remain about whether these linkages reflect causation or prior differences (selection effects). Questions also remain about whether such associations vary by socioeconomic status (SES) and race/ethnicity. This study examines those questions using nationally representative data from two decades (1991–2010) of annual Monitoring the Future surveys involving about 600,000 students in 10th and 12th grades. White students are consistently more likely than minority students to hold paid employment during the school year. Among White and Asian-American students, paid work intensity is negatively related to parental education and grade point averages (GPA), and positively related to substance use. Also among Whites and Asian Americans, students with the most highly educated parents show the strongest negative relations between work intensity and GPA, whereas the links are weaker for those with less educated parents (i.e., lower SES levels). All of these relations are less evident for Hispanic students, and still less for African-American students. It thus appears that any costs possibly attributable to long hours of student work are most severe for those who are most advantaged – White or Asian-American students with highly educated parents. Working long hours is linked with fewer disadvantages among Hispanic students and especially among African-American students. Youth employment dropped in 2008–2010, but the relations described above have shown little change over two decades.

Keywords

student employment; educational attainment; substance use; race/ethnicity; socioeconomic status

Most high school students in the United States spend some time in paid work during the school year. Research (cited below) has shown that higher hours of work are associated with a variety of problems, ranging from poor academic performance to substance use. Some authors, however, have raised questions about whether these broad findings based on total samples are equally applicable to certain subgroups, especially racial/ethnic minority students and students from low-income families (Entwisle, Alexander, & Olson, 2005;

Johnson, 2004; Leventhal, Graber, & Brooks-Gunn, 2001; Staff & Mortimer, 2008). This article helps to address those questions by analyzing nationally representative survey data from the Monitoring the Future (MTF) project, examining whether youth from certain racial/ethnic and socioeconomic backgrounds may be more likely, and others perhaps less likely, to suffer adverse consequences from working long hours during the school year. The article also considers whether these relations have changed over two decades, including the recent (2008–2010) overall downturn in employment.

The association between high work intensity and problem behaviors may reflect causation, self-selection, or some of each. Theoretical perspectives that stress causal relationships (i.e., social control theory, routine activities theory) hold that high work intensity may increase problem behaviors by weakening the informal social control of parents and teachers, by competing with school work and extracurricular activities, or by facilitating unstructured and unsupervised activities with peers (Hirschi, 1969; Osgood, Wilson, O'Malley, Bachman, & Johnston, 1996). Alternatively, several theoretical perspectives stress spurious relationships (i.e., self-control theory, problem behavior theory, precocious development theory), positing that youth who work intensively are more likely to be involved in problem behaviors because of preexisting orientations and behaviors. Youth who have difficulty delaying long-term gratification, who are transition prone, or who are striving for a more “adult-like” independence may lean more toward substance use and the immediate rewards of high intensity work (e.g., pay, autonomy, status from friends and intimate partners) than achieving high grades in school (Gottfredson & Hirschi, 1990; Jessor & Jessor, 1977; Newcomb & Bentler, 1988; Bachman & Schulenberg, 1993).

Publications based on MTF have consistently reported relations between work intensity and various measures of adolescent achievement and adjustment that are largely linear and negative (Bachman, 1983; Bachman, Johnston, & O'Malley, 1981; Bachman & Schulenberg, 1993; Bachman, Staff, O'Malley, Schulenberg, & Freedman-Doan, 2011; Bachman et al., 2008; Osgood, 1999; Safron, Schulenberg, & Bachman, 2001). Specifically, with each increment in hours of paid work, substance use is higher, whereas levels of school success and educational aspirations are lower. There are two exceptions to the general conclusion that less is better when it comes to student work intensity: First, those working *zero* hours report poorer outcomes than those at low or moderate levels of paid work; and second, among those who did hold paid employment in 12th grade, longitudinal analyses show little distinction in long-term educational attainment whether they had worked 1–5, 6–10, or 11–15 hours (Bachman et al., 2011). Another key finding from MTF and most other research is that although adolescent work intensity during the school year is *correlated* with negative outcomes, at least a good deal of the association seems attributable to prior more fundamental differences, i.e., selection effects (Apel et al., 2007; Bachman, Safron, Sy, & Schulenberg, 2003; Paternoster, Bushway, Brame, & Apel, 2003; Mortimer, 2003; Rothstein, 2007; Schoenhals, Tienda, & Schneider, 1998; Staff, Osgood, Schulenberg, Bachman, & Messersmith, 2010; Staff, Schulenberg, & Bachman, 2010; Warren, 2002; Warren, LePore, & Mare, 2000). Nevertheless, there is also evidence suggesting that high work intensity has negative impacts on educational attainment and may also contribute to long-term cigarette smoking (e.g., Bachman et al., 2011).

An important question remains about whether the negative correlates of intensive work are evident to an equal extent among various population subgroups – especially those defined by race/ethnicity and socioeconomic status (SES). It is well established that the onset and intensity of teenage employment vary by these demographic characteristics (National Research Council, 1998; Staff, Messersmith, & Schulenberg, 2009; U.S. Department of Labor, 2000). Theoretical perspectives that stress selection processes (e.g., problem behavior, precocious development, and self-control theories) suggest that differential

selection into employment may account for race/ethnic and SES differences in associations between paid work and problem behavior. For instance, African-American and Hispanic youth as well as low SES youth confront significant challenges when finding and obtaining a job, such as discrimination and a more limited and competitive local job market, compared to White youth and those from more advantaged backgrounds (Newman, 1999; Sullivan, 1989). Given this more stringent process of selection, minority and low SES youth who eventually obtain paid work may be less prone to problem behaviors, even when they work at high intensities.

Theoretical perspectives that stress causal mechanisms (e.g., social control or routine activities theory) suggest that population subgroup differences in the context of employment, or in reasons for working, may lead to varying work effects. For instance, the more stringent selection into work among African-American, Hispanic, and low SES youth may increase the likelihood that they will be employed in relatively good jobs (Entwisle, Alexander, & Olson, 2000; Newman, 1999). Higher quality work experiences (i.e., learning opportunities, skill utilization, and compatibility with school) may provide youth with a greater stake in conformity and fewer opportunities for misconduct both during and outside of work. Furthermore, African Americans, Hispanics, and low SES youth may need to work more hours to help with family finances or future educational expenses, in comparison to teenagers who are working only for discretionary income (Bachman, 1983; Greenberger & Steinberg, 1986; Entwisle et al., 2000, 2005; Newman, 1999). Therefore, to the extent that minority and low SES students are more likely than average to have rewarding jobs and use their earnings for family obligations and school expenses, long hours in such jobs may be less likely to increase problem behaviors (Marsh, 1991; Marsh & Kleitman, 2005; Staff & Uggen, 2003; Staff et al., 2010).

Little research has identified whether the correlates, and possible effects, of work intensity are different for African-American, Asian-American, Hispanic, and White youth, or for youth from more or less advantaged socioeconomic backgrounds. D'Amico (1984), for example, found that only White males had increased odds of high school dropout when they spent long hours on the job. Similarly, Johnson (2004) found that Whites who spent long hours on the job had higher rates of alcohol and substance use, whereas any effects of intensive work were inconsistent among African-American and Hispanic youth. Other research has found that employment, even at high intensity during the school year, may not undermine education nor contribute to problem behaviors for those youth who come from low SES backgrounds (Entwisle et al., 2005; Farkas, Olsen, & Stromsdorfer, 1981; Farkas, Smith, & Stromsdorfer, 1983; Leventhal et al., 2001). Lee and Staff (2007) found that intensive work had little effect on school dropout among those youth who were especially likely, based upon gender, race/ethnicity, socioeconomic background, school performance, and other preexisting characteristics, to spend long hours on the job.

Method

Samples

Analyses reported here are based on the MTF questionnaires administered to 10th and 12th graders in the years 1991–2010. Each year, MTF surveys students in public and private high schools throughout the contiguous United States. A multistage random sampling procedure is used to select nationally representative samples. Procedure details are available elsewhere (Bachman et al., 2011; Bachman, O'Malley, Johnston, & Schulenberg, 2010; Johnston, O'Malley, Bachman, & Schulenberg, 2012).

The analyses include 314,959 tenth and 276,026 twelfth graders who answered the relevant question(s) about work intensity during the school year. Relational analyses used case-wise

deletion to deal with missing data, given that earlier research with MTF data on student employment showed highly similar findings when case-wise deletion and multiple imputation of missing data were compared (Bachman et al., 2011).

Measures

Full question texts and response categories for all variables used in these analyses are presented in the Appendix. Key measures are summarized here.

Work intensity during the school year—Tenth grade respondents were asked, “On the average over the school year, how many hours per week do you work in a paid job?” The response categories were: none, 5 hours or less, 6–10, 11–15, 16–20, 21–25, 26–30, and more than 30 hours. The question to 12th graders asked about “...a paid or unpaid job” and a separate question about earnings distinguished those who worked but not for pay.

School performance and substance use—School performance was self-reported grade point average attained during “this school year” for 10th graders and “so far in high school” for 12th graders (each coded on a nine-point scale, 1 = ‘D’ to 9 = ‘A’). Substance use measures included seven-point frequency scales of cigarette use in the last 30 days and marijuana use in the last 12 months, and a six-point scale of heavy drinking (five or more drinks in a row) during the past two weeks.

Background factors—Sociodemographic measures included gender, race/ethnicity, class cohort, and parental education. Race and ethnicity were coded into four dummy variables indicating Hispanic, African American, Asian American, and White. Urban density, number of parents in the household, whether the respondent’s mother held a paid job, number of evenings out per week for fun and recreation, the respondent’s type of high school program, and his or her truancy over the last month were also included as predictors.

Analysis Strategy

Earlier extensive analyses established that the relations between paid work intensity and the outcome measures are generally linear and similar for males and females (Bachman, Staff, O’Malley, & Freedman-Doan, 2013); thus the present reporting focuses on linear relations, and is based on males and females combined (with gender included among the control variables).

Findings

Work Intensity by Race/Ethnicity Subgroups

Figure 1 presents the overall numbers of cases and percentages in responses to the work intensity question(s) by race/ethnicity, separately for 10th and 12th graders. Data are shown for the overall sample (1991–2010), and also separately for recent cohorts (i.e., 2008–2010). Twelfth graders are more likely to work, and to work longer hours, compared to those two years younger. The younger students are less educated, less experienced, and somewhat physically smaller on average, all of which can make them less attractive to employers. In addition, many of the 10th graders are below the age of 16, and that may place legal limitations on the amount they are permitted to work. Among those who were employed, the 10th graders worked relatively few hours; the modal response for those working was 5 hours or less. Among employed 12th graders the modal response was 16–20 hours.

In both 10th and 12th grades, White students were more likely than minority students to report paid employment during the school year. Among 10th graders in 1991–2010, 43% of Whites reported paid employment, contrasted with 29% of African Americans, 31% of

Hispanics, and 26% of Asian Americans. Among 12th graders, 72% of Whites reported paid employment, compared with 57% of African Americans, 59% of Hispanics, and 53% of Asian Americans. However, although White students were more likely than other students to report any paid employment during the school year, African-American and Hispanic students who did hold jobs were more likely to report long hours of work (that is, more than 25 hours per week); specifically, among 12th graders who were employed, 22% of Whites reported long work hours compared to 31% of African Americans, 32% of Hispanics, but only 18% of Asian Americans.

Figure 1 also shows that in 2008–2010 the proportions of students working 16 or more hours per week declined, and the proportions not working increased. But in spite of that shift in rates and intensity of employment, overall subgroup differences remained fairly consistent; specifically, Whites were most likely to be employed, and Asian Americans were least likely to be employed or work at high intensity levels.

Relations between Work Intensity, GPA, and Substance Use

Table 1 provides an overview for the total samples relating work intensity to GPA and to substance use. These results are standardized coefficients based on students reporting paid employment. GPA is included among the predictor variables when substance use is an outcome, because GPA is the most stable of the outcome measures and thus usually is causally prior to the others. Comparison of the bivariate and multivariate coefficients in Table 1 shows that about one third of the relations between paid work intensity and GPA do not overlap with the other predictors, about half of the relations involving heavy drinking or marijuana use are non-overlapping, and somewhat more than half of the relations involving smoking are non-overlapping. It is noteworthy that these patterns are quite similar for the 10th and 12th grade students, in spite of the large difference between grades in overall work intensity.

Differences by Race/Ethnicity and Parental Education

Students with better-educated parents are more likely to have limited hours of paid work during the school year. Total sample correlations between parental education and work intensity are sizeable, $r = -.26$ for 10th and $-.25$ for 12th graders (details reported in Bachman et al., 2013). Among racial/ethnic subgroups, this negative relationship appears for White and for Asian-American students, whereas among African-American and Hispanic students the associations between parental education and work intensity are far weaker.

To describe the extent to which links between work intensity and outcomes vary by parental education, as well as by race/ethnicity, Table 2 presents unstandardized bivariate and multivariate OLS regression coefficients for total samples and the four race/ethnicity subgroups, further separated into three categories of parental education (ranging from 1=parent(s) average degree is high school or less to 3=parent(s) have completed college).

Overall race/ethnicity differences—Findings limited to White students are consistently slightly stronger than those for total samples. Findings for Asian-American students are similar to those for the total sample, which means that their findings are also similar to those for White students. Findings for African-American students are much weaker than those for White and Asian-American students; therefore, total sample findings regarding links with paid work intensity cannot be generalized to African-American students. In several respects the findings for Hispanic students fall in between those for African-American students and those for the White and Asian-American students.

Interactions of paid work intensity, race/ethnicity, and parental education relating to GPA and substance use—

Table 2 reveals that only a few interactions are large enough to be considered of substantive importance, especially when we focus on the multivariate coefficients; the most interesting of these involve GPA. Among total samples and all subgroups in both grades, relations between paid work intensity and GPA are all negative, but they are not equal. For the total samples, moving from the lowest level of parental education to the highest, absolute values of coefficient sizes increase substantially – roughly doubling for 10th and tripling for 12th graders. These differences are many times larger than the standard errors of the coefficients (shown in Table 2), and thus statistically significant. The *pattern* is much the same for White students in both grades and for Asian-American students in 12th grade; however, it is notably weaker among Hispanics, and weaker still among African Americans (whose coefficients are not significantly different from zero). None of the substance use measures in Table 2 shows interactions nearly as substantial as those for GPA. This general observation holds true for total samples in both grades, as well as most subgroups, and applies to both bivariate and multivariate coefficients.

Figure 2 shows the paid work-GPA interactions described above in greater detail. The patterns for Whites are highly linear. The patterns for the other subgroups are somewhat uneven, at least in part because some of the work intensity categories have few cases; however, with two exceptions the 12th grade subgroups show no clear and important departures from linearity. The exceptions are that among African-American and Hispanic 12th graders, those with highly educated parents showed a curvilinear relationship between work intensity and GPA. Specifically, those who worked from 21 to 30 hours per week had lower GPAs than all others with highly educated parents, whereas those who worked more than 30 hours per week had average GPAs similar to those who worked 20 or fewer hours per week.

Figure 2 shows not only the different slopes noted above, but also the overall differences in mean levels. So, for example, even though high levels of paid work intensity appear more “costly” for high SES Whites than for low SES Whites, high SES Whites who work long hours show no lower GPAs than lower SES Whites working 1–5 hours. This holds for the unadjusted values in the upper portion of the figure, whereas the adjusted data show a weaker version of the pattern. Figure 2 also shows findings for Asian Americans similar to those for Whites, except that GPAs are consistently higher for the Asian-American students.

In spite of the decline in overall youth employment in 2008–2010 (see Figure 1), additional multivariate analyses reveal that the decline does not appreciably alter the patterns of relationship reported above for all graduating classes from 1991 through 2010 (Bachman et al., 2013). This is further evidence that the correlates of student employment have been highly stable across recent decades, even during periods of severe economic downturn.

In sum, for the total samples at both grades, and for most race/ethnicity subgroups, it appears that the negative association between paid work intensity and GPA is far more pronounced among students with highly educated parents. The one subgroup for which this is not the case is African Americans; for them we observe no clear and consistent link between work intensity and GPA, no matter what their level of parental education. Apart from the African Americans, Figure 2 suggests that, to the extent that high work intensity exacts costs in terms of GPA, those costs are most pronounced for students with the most highly educated parents.

Discussion

Consistent with prior research (National Research Council, 1998; U.S. Department of Labor, 2000), age, gender, race/ethnicity, and socioeconomic background are linked with the onset and intensity of employment in adolescence. In particular, our findings confirm that 12th graders are more likely than 10th graders to be employed and to spend longer hours on the job. White students are more likely than minority students to have paid employment during the school year. However, among those employed, African-American and Hispanic students are more likely than Whites to spend long hours on the job, whereas Asian Americans are less likely than Whites to work intensively. Among students holding paid employment during the school year, those having highly educated parents work fewer hours than those whose parents are less educated.

Not only do the results show variation by population subgroups in rates of employment and paid work intensity, they also suggest some differences in how work intensity relates to school success and problem behaviors. Specifically, consistent with other research (Johnson, 2004; Entwisle et al., 2000, 2005; Leventhal et al., 2001; Newman, 1999), if intensive work causes harm to students in general, it appears less harmful for African-American and for Hispanic subgroups; the relationships between intensive work and problem behaviors are significantly weaker for Hispanics and African Americans compared to Asian Americans and Whites. But among those students for whom such work is least likely (i.e., least predicted, based on race/ethnicity and parental education), it appears that intensive work is most strongly linked with negative outcomes. In particular, among Whites and Asian Americans who have highly educated parents, long hours on the job show strongest negative links with academic success. This may reflect harmful effects of high work intensity; however, it could also reflect selection, with rebellious students “acting out” by poor school performance and substance use, and also by choosing to work long hours.

Among students who work, African Americans and Hispanics are more likely than Whites and Asian Americans to spend long hours on the job. Moreover, although youth from lower SES backgrounds are less likely to be employed, compared with their more advantaged age-mates, those who do have jobs are more likely to work intensively. Why does working long hours seem to show little effect on achievement and problem behaviors for these less advantaged youth? One reason may be that selection into employment explains subgroup differences in how intensive work relates to problem behaviors (Staff, Osgood, et al., 2010; Staff, Schulenberg, & Bachman, 2010). With respect to race/ethnicity, African-American and Hispanic youth face relatively greater obstacles and challenges in obtaining a job (such as discrimination and poor local labor market opportunities) compared to White youth; this more stringent selection into employment, even into employment at high intensities, may mean that those selected are individuals who are less prone to problem behaviors. Similarly with respect to SES, low SES youth also face unique obstacles and challenges in obtaining employment compared to their more socioeconomically advantaged counterparts; ethnographic research shows that youth who reside in poor urban neighborhoods have fewer opportunities to find jobs than do youth in higher-SES neighborhoods (Newman, 1999). Among higher SES youth, who face less stringent selectivity into jobs, those prone to problem behaviors may more easily obtain employment in general and access jobs that offer long hours.

Differential selection into employment may also influence the overall quality of employment and help explain sociodemographic variation in paid work effects. More stringent selection into employment among African-American, Hispanic, and low SES youth might mean that those who are selected have a heightened likelihood of working with adult mentors (Newman, 1999; Entwisle et al., 2000, 2005). Adult mentors could provide vocational and

educational guidance by teaching young workers valuable job-related skills, by facilitating connections to other adult supervisors and coworkers, or by showing young workers the educational requirements they will need for future professions. Adults in the workplace may also teach young workers how to be responsible, autonomous, and trustworthy; how to conduct themselves in interviews; and how to interact with customers, supervisors, and coworkers (Sullivan, 1989). However, other analyses using nationwide samples from MTF have shown that minority students are not more likely than average to be employed alongside adult supervisors or coworkers, though African-American and Hispanic students indicate higher levels of skill utilization in their jobs and are less likely than Whites to report that their jobs are interfering with family life, social life, and education pursuits (Staff, Schulenberg, Bachman, Parks, & VanEseltine, 2010).

It is also plausible that African Americans, Hispanics, and low SES youth who work intensively are doing so for different reasons than are Whites and high SES youth. Though teenagers often work for discretionary income rather than to provide for the financial needs of the family or for future educational expenses (Bachman, 1983; Greenberger & Steinberg, 1986), youth who come from disadvantaged backgrounds are more likely to need to work more hours to pay for school supplies and activities, to help their parents with household expenses, or to save for college (Newman, 1999). They may also view these early work experiences as socialization to future occupations, valuable for both human capital formation and the development of career networks, especially if they believe their post-secondary educational prospects are limited (Entwisle et al., 2000). Therefore, youth from lower SES backgrounds may be less likely to find that work is incompatible with school, with their future careers, or with family obligations than are students from more advantaged families, which in turn may provide some protection against problem behaviors (Staff & Uggen, 2003). Moreover, researchers have suggested that work intensity has positive effects on achievement and adjustment among students who save their earnings for future education (Marsh, 1991; Marsh & Kleitman, 2005). Working long hours during the school year may not be as problematic among minority and low SES youth because they are more likely to be using their earnings for school and family expenses, whereas most youth spend the bulk of their earnings on other things (Bachman, 1983).

The present study is well suited to document the broad boundaries of key relationships with potentially important policy implications, not only for total populations but also for subgroups. Nevertheless, there are some limitations. First, our analyses of 12th graders exclude approximately 15 to 20% of the population who do not graduate from high school. While intensive work during 12th grade may not be so bad among low SES and minority youth who stay in school that long, it still may be developmentally harmful among low SES and minority youth who work intensively at younger ages. It is, however, worth noting that our substantive findings are similar among both 12th and 10th graders. A second limitation is that although we include a number of important variables to help control for spurious relationships, we may have missed some pre-existing differences between intensive workers, moderate workers, and nonworkers, such as family income and orientations toward work. Third, we focus on the *intensity* of work during high school, but the *quality* of work experience (e.g., job stress, work-school conflict, work-family conflict, learning opportunities, ages of supervisor and coworkers) may help explain the observed subgroup differences in the harmful effects of work intensity. More research is needed on these issues.

One other limitation, common to this and much other research on possible impacts of work intensity, is a reliance on cross-sectional data, which cannot fully demonstrate possible long-term effects. Our decision to focus on cross-sectional data in the present article was influenced especially by the need to have sufficiently large samples to permit analysis of relatively small population subgroups. However, another set of MTF analyses, which did not

examine subgroups separately, made use of panel data tracking 12th graders for a number of years after graduation. Those analyses showed that high work intensity in 12th grade is negatively linked to educational attainment at modal ages 21–22 and 29–30, and perhaps positively associated with long-term cigarette use (Bachman et al., 2011). Key portions of those earlier analyses were repeated for the three largest subgroups: Whites, African Americans, and Hispanics (see Bachman et al., 2013, for details). Negative links between work intensity and educational attainment were much weaker among African-American and Hispanic high school graduates than Whites, consistent with the cross-sectional findings reported in the present article.

For several decades now, consistent findings of negative outcomes associated with high work intensity have been the basis for a major policy recommendation: High school students should avoid spending long hours on the job during the school year (National Research Council, 1998). Yet, recent research indicates that many of the negative behaviors associated with high work intensity may be attributable to other prior factors (selection effects), and a key finding emerging from the present research is that to the extent that there are genuine negative consequences of high student work intensity, they seem not to occur equally across socioeconomic and racial/ethnic subgroups. Rather, the present findings suggest that high intensity work during the school year may carry greatest risks for the very students for whom such high intensity work is least likely: Whites, Asian Americans, and students whose parents are well educated and thus usually more socioeconomically advantaged. Possible costs of high student work intensity appear more limited for Hispanics, African Americans, and youth from less advantaged socioeconomic backgrounds.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.

Figure 2.

Table 1

10th Grade and 12th Grade Paid Work Intensity Predicting Academic and Substance Use Outcomes: Standardized Bivariate and Multivariate* OLS Regression Coefficients, Samples Restricted to Those Reporting 1+ Hours of Paid Work

	<i>10th Grade, 1991–2010 Total Sample</i>			
	GPA	30-Day Cigarette Use	Heavy Drinking	Annual Marijuana
Bivariate (Pearson)	−0.195	0.181	0.147	0.145
Multivariate (OLS)	−0.070	0.099	0.069	0.062
Adj. R-square	0.267	0.213	0.174	0.199

	<i>12th Grade, 1991–2010 Total Sample</i>			
	GPA	30-Day Cigarette Use	Heavy Drinking	Annual Marijuana
Bivariate (Pearson)	−0.180	0.156	0.086	0.091
Multivariate (OLS)	−0.071	0.102	0.047	0.045
Adj. R-square	0.238	0.185	0.179	0.187

Notes: Coefficients are from OLS regressions: Dependent variables are continuous versions of outcome variables; paid part-time work (1+ hours) is also treated as a continuous variable; other independent variables in multivariate analyses are dummy variable measures of region, urbanicity, number of parents in the home, parental education, school truancy, year of graduation, number of evenings out for fun during the school year, mother's employment status, gender, and race/ethnicity. Grade point average (dummy variable version) is included among the independent variables when substance use is the dependent variable. See Appendix for further details.

Weighted Ns for models of 10th and 12th grade Heavy Drinking are 110,184 and 193,154, respectively. Due to differential response rates to items concerning GPA and the other substances, all other models include weighted Ns equal to or greater than the weighted N for the model predicting Heavy Drinking.

All coefficients in the table are significantly different from zero; .01 confidence intervals around all coefficients are smaller than $\pm .010$.

10th Grade and 12th Grade Paid Work Intensity Predicting Academic and Substance Use Outcomes by Parent Education Levels^a: Unstandardized Bivariate and Multivariate^c OLS Regression Coefficients and Standard Errors, Samples Restricted to Those Reporting 1+ Hours of Paid Work

Table 2

10th Grade:1991–2010											
Race/Ethnicity	Parent Education	Wtd. N ^c	GPA			30-Day Cigarette Use			Heavy Drinking		
			Bivariate	Multivariate	Standard Error	Bivariate	Multivariate	Standard Error	Bivariate	Multivariate	Standard Error
Total Sample	Low SES	35,763	−0.131	−0.059	0.008	0.091	0.057	0.005	0.080	0.043	0.005
	Middle SES	60,236	−0.229	−0.108	0.007	0.114	0.066	0.004	0.088	0.041	0.004
	High SES	14,185	−0.255	−0.131	0.014	0.116	0.062	0.008	0.123	0.064	0.008
Whites	Low SES	24,083	−0.167	−0.081	0.010	0.129	0.070	0.007	0.098	0.047	0.006
	Middle SES	47,828	−0.254	−0.126	0.008	0.142	0.075	0.004	0.105	0.047	0.005
	High SES	11,307	−0.256	−0.148	0.016	0.155	0.076	0.010	0.152	0.069	0.009
African Americans	Low SES	3,233	0.009	0.042	0.024	0.031	0.032	0.012	0.021	0.015	0.012
	Middle SES	4,874	−0.071	−0.021	0.019	0.022	0.008	0.006	0.023	0.004	0.010
	High SES	898	0.003	0.007	0.042	0.022	0.007	0.014	0.045	0.029	0.018
Hispanics	Low SES	5,472	−0.069	−0.036	0.021	0.049	0.026	0.009	0.061	0.043	0.012
	Middle SES	3,182	−0.112	−0.058	0.028	0.086	0.052	0.016	0.080	0.027	0.018
	High SES	590	−0.188	−0.097	0.064	0.070	0.006	0.032	0.141	0.056	0.041
Asian Americans	Low SES	627	−0.190	−0.075	0.059	0.047	0.000	0.023	0.049	0.016	0.021
	Middle SES	1,058	−0.207	−0.148	0.044	0.056	0.035	0.025	0.056	0.020	0.017
	High SES	569	−0.163	−0.085	0.049	0.046	0.027	0.027	0.103	0.068	0.026
Annual Marijuana Use											
Total Sample	Low SES	63,025	−0.100	−0.043	0.006	0.087	0.056	0.004	0.052	0.030	0.005
	Middle SES	107,465	−0.194	−0.093	0.005	0.119	0.078	0.003	0.068	0.036	0.003
	High SES	22,664	−0.230	−0.132	0.009	0.128	0.076	0.006	0.089	0.042	0.007
Whites	Low SES	40,815	−0.117	−0.042	0.008	0.120	0.076	0.006	0.061	0.034	0.006
	Middle SES	82,571	−0.208	−0.103	0.005	0.150	0.088	0.004	0.087	0.038	0.004
	High SES	17,921	−0.226	−0.145	0.011	0.153	0.082	0.007	0.102	0.041	0.008
African Americans	Low SES	6,469	−0.038	−0.024	0.017	0.015	0.013	0.009	−0.003	−0.005	0.010
	Middle SES	9,560	−0.056	−0.017	0.014	0.026	0.022	0.005	0.007	0.006	0.008
	High SES	1,319	−0.089	−0.018	0.034	0.055	0.038	0.019	0.072	0.048	0.020
Hispanics	Low SES	10,082	−0.071	−0.046	0.014	0.039	0.022	0.007	0.046	0.031	0.011
									0.076	0.061	0.014

12th Grade:1991–2010											
Race/Ethnicity	Parent Education	Wtd. N ^c	GPA			30-Day Cigarette Use			Heavy Drinking		
			Bivariate	Multivariate	Standard Error	Bivariate	Multivariate	Standard Error	Bivariate	Multivariate	Standard Error
Total Sample	Low SES	63,025	−0.100	−0.043	0.006	0.087	0.056	0.004	0.052	0.030	0.005
	Middle SES	107,465	−0.194	−0.093	0.005	0.119	0.078	0.003	0.068	0.036	0.003
	High SES	22,664	−0.230	−0.132	0.009	0.128	0.076	0.006	0.089	0.042	0.007
Whites	Low SES	40,815	−0.117	−0.042	0.008	0.120	0.076	0.006	0.061	0.034	0.006
	Middle SES	82,571	−0.208	−0.103	0.005	0.150	0.088	0.004	0.087	0.038	0.004
	High SES	17,921	−0.226	−0.145	0.011	0.153	0.082	0.007	0.102	0.041	0.008
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									0.076	0.061	0.014