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Adolescent Work Intensity and Substance Use: The Mediational and Moderational Roles of Parenting

The dialectic between the adolescent quest for autonomy and parents' desire to regulate this quest are explored by examining the extent to which the association between adolescent work intensity and substance use is mediated and moderated by parenting practices. Results using data from the National Survey of Youth and Religion (N = 3,290) show that the association between work intensity and alcohol use is mediated by parenting practices. There is also limited support for the moderational role of parental monitoring with respect to heavy drinking. Finally, connections among work intensity, parenting practices, and substance use are pronounced for adolescents younger than 16 years of age. These findings suggest the importance of a multifaceted view of parenting practices that both shape and are shaped by their adolescent's search for independence.

Adolescence is widely acknowledged as a time when youth acquire increasing autonomy from their parents, leaving behind the dependencies of childhood and assuming new roles associated with adulthood. The pace at which this freedom is obtained, however, can influence adolescents' pathways to adulthood: Achieving independence too quickly can have negative consequences for behavioral adjustment, including, for example,

teenage pregnancy and substance use (Hagan & Wheaton, 1993; Krohn, Lizotte, & Perez, 1997). Parents are typically viewed as *regulators* who hope to monitor and otherwise control the timing and processes associated with this pursuit for autonomy. Entry into the workplace is one such step toward adulthood, bringing with it responsibilities, strains, and rewards not previously encountered at school or at home (Mortimer, 2004).

Several early national committees heralded the long-term benefits and character-building nature of adolescent employment (e.g., Panel on Youth of the President's Science Advisory Committee, 1972; Work-Education Consortium of the National Manpower Institute, 1978). Yet Greenberger and Steinberg's (1986) influential *When Teenagers Work* challenged these reports by lamenting employment during high school for its numerous negative consequences, all of which reflected, according to them, the premature assumption of adult roles and independence from parents. Of particular concern was Greenberger and Steinberg's finding that adolescent workers were at heightened risk to use illicit substances, including alcohol and marijuana, a finding that has been replicated numerous times (e.g., Mihalic & Elliot, 1997; Safron, Schulenberg, & Bachman, 2001; Valois, Dunham, Jackson, & Waller, 1999). Indeed, a more recent report issued by the federal government has altered their viewpoint, suggesting a limitation in work hours for adolescents (National Research Council, 1998).

Despite the fact that both paid work experiences and family practices have been identified as prominent precursors to substance use, little

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research has examined the links among these three domains. The present study integrates these strands of research, exploring how parenting practices both mediate and moderate the link between work intensity and alcohol and marijuana use. We draw on data from the National Study of Youth and Religion, a large ($N = 3,290$) sample of youth (aged 13 – 17 years) and their parents. The analyses also examine whether connections among paid work, parental practices, and substance use vary by age.

BACKGROUND

Precocity, Work, and Substance Use

Many studies showed that high school students who engage in paid work also drink alcohol and use marijuana at higher rates than their nonworking counterparts (Paschall, Ringwalt, & Flewelling, 2002; Steinberg & Dornbusch, 1991). Other studies indicated that work status is less consequential for substance use than is intensity of work. For instance, although observing no differences in mental health and academic achievement between workers and nonworkers, Mortimer, Finch, Ryu, Shanahan, and Call (1996) reported a strong positive relationship between intense work (i.e., working in excess of 20 hours per week) and alcohol use (for similar findings, see Mihalic & Elliot, 1997; Valois et al., 1999; Wu, Schlenger, & Galvin, 2003).

A variety of reasons have been proposed to explain this relationship. First, the relationship may reflect differential selection such that factors related to work intensity may also be related to relationships with parents or substance use, or both. Schoenhals, Tienda, and Schneider (1998), for example, found direct relationships between worker status on the one hand and gender, race, income, age, and family structure on the other hand, all of which have also been linked with parent relationships and substance use (see Windle, 1999; Windle & Windle, 2003, for a review). Thus, there is evidence that sociodemographic factors may encourage work intensity and autonomy from parents or substance use, or both (differential selection, Hypothesis 1).

Some scholars have suggested, however, that intense involvement in paid work during high school is part of a larger syndrome, reflecting an internal premature desire to enter adulthood (Jessor & Jessor, 1977; Newcomb & Bentler, 1988). *Pseudomaturity theory* refers to adoles-

cents having the appearance of social maturity by taking on adult roles and activities without having developed the commensurate psychological maturity. For example, Newcomb (1996) argued that substantial involvement in roles, relationships, and behaviors typically associated with adulthood—including intense work involvement—"precludes or circumvents the acquisition and mastery of the skills necessary to succeed in adult roles" (p. 479). According to this theory, entry into adult-like roles at an early age presents adolescents with stressors that they are not psychologically prepared to handle, thereby resulting in a range of distressful outcomes, including a breakdown in family relations and increased substance use.

Supporting this conclusion, researchers have found working in adolescence to be associated with increased conflict with parents (Bachman & Schulenberg, 1993; Call, 1996), hindered communication and closeness (Largie, Field, Hernandez-Reif, Sanders, & Diego, 2001; Shanahan, Elder, Burchinal, & Conger, 1996a), and lowered parental monitoring (Pickering & Vazsonyi, 2002; Shanahan, Elder, Burchinal, & Conger, 1996b). Steinberg, Fegley, and Dornbusch (1993) found that although those who began working had more freedom from their parents prior to their employment, working increased this autonomy. Further, McMorris and Uggen (2000), using a community sample of youth in St. Paul, Minnesota, concluded that adolescents who report gaining a sense of independence from their parents through work were more likely to drink and to increase their levels of drinking throughout high school. This study, however, was limited to an examination of adolescent-reported family attachment and alcohol use.

Autonomy from parents is surely not the only reason adolescents commence paid employment or why those who do also tend to use substances. Exposure to older, deviant peers while at work, for example, represents a plausible explanatory mechanism for this interrelationship. Nevertheless, conceptual perspectives and previous research suggest that intense involvement in paid work may be associated with decrements in the quality of the parent-adolescent relationship, which, in turn, will make substance use increasingly likely (i.e., a mediational model, Hypothesis 2).

Parenting as Social Control and Social Capital

Although research has established that paid work during high school is associated with increasing

independence from parents, such studies have typically neglected the active role parents play in their child's development. Parents who can maintain a high level of control may act as a protective buffer against possible risk factors that would otherwise promote delinquent activity (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Sampson & Laub, 1993). Consistent with social control theory (Hirschi, 1969), several studies have found a direct link between a lack of monitoring or supervision and increased rates of delinquent activities, including use of alcohol (Barnes & Farrell, 1992; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003) and marijuana (Aseltine, 1995; Ramirez et al., 2004).

The link between family cohesion and delinquency is not as consistently observed as the link between monitoring and delinquency. Nevertheless, Windle and Davies (1999) noted that extreme family discord can increase the chances of the child developing problem drinking habits as a consequence of emotional detachment. Additionally, Bryant, Schulenberg, O'Malley, Bachman, and Johnston (2003) found that parental involvement with their child's schoolwork provided a buffer against substance use, and Bailey and Hubbard (1990) concluded that strong communication between parents and children significantly delayed the onset of marijuana use. Thus, high levels of parental support, closeness, or monitoring may serve as a protective factor against the risks of substance use (i.e., a moderational model, Hypothesis 3).

One extant study has provided a preliminary test of parenting as a mediating and moderating factor. Drawing on cross-sectional analysis of the National Longitudinal Study of Adolescent Health data, Roisman (2002) examined whether (a) adolescent work influenced school disengagement by causing a breakdown in closeness with parents and (b) the effects of intense work on school disengagement were most detrimental to those adolescents who were most distant from their families. Results provided support for the former, mediation model, but not for the latter, moderating role of parental practices. The present study builds on Roisman's research by examining substance use, using adolescent and parent reports of family practices, and by including direct measures of parental monitoring, which is thought to be among the most salient dimensions of parenting with respect to substance use.

This study also considers Sampson and Laub's (1993) extension of control theory that simultaneously includes both informal social controls and social capital. According to this perspective, social capital refers to strong social bonds, which, in turn, determine the extent of the control's influence. Given that parental closeness is a form of social capital and that parental monitoring is a form of social control, this theory would suggest an interactive effect between parental closeness and monitoring. Consistent with this expectation, Barnes, Reifman, Farrell, and Dintcheff (2000) found that monitoring had its greatest effect on alcohol use in families with higher levels of support. Similarly, Kerr and Stattin (2000) have suggested that monitoring might be more a function of the child's willing self-disclosure of activities than of parents' active supervision (see also, Stattin & Kerr, 2001). Thus, children are increasingly willing to cooperate with parental standards as family closeness increases. In examining this possibility, Kerns, Aspelmeier, Gentzler, and Grabill (2001) found that children are more likely to check in with their parents when they feel a greater sense of attachment to them. On the basis of these considerations, a significant interaction is expected between monitoring and closeness in the prediction of substance use, such that adolescents who experience high levels of both factors will be significantly less likely to use substances (Hypothesis 4).

Developmental Patterns of Work, Parenting, and Substance Use

Finally, previous research has suggested that the mediational and moderational roles of parenting may vary in importance depending on the adolescent's age. Pseudomaturity theory asserts that the effects of work should be stronger for younger adolescents than for older adolescents. Newcomb (1996) argued that the effects of pseudomature behaviors depend on how early they occur compared to traditionally normative patterns of development. For younger adolescents, any level of paid work would be considered an abnormally early transition into an adult role; thus, the effect of work may be exceedingly detrimental for this group. According to this reasoning, work should negatively affect family relationships to a greater extent among younger adolescents. Further, this breakdown will more likely lead to substance use for younger adolescents because, as pseudomaturity theory asserts, they have not had the time to develop the necessary psychological skills to cope with such stressors. On the basis

of these considerations, paid employment should have a greater association with negative outcomes for younger workers, including substance use and parent relationships. Thus, the mediational effect of parents on working should be greater in magnitude for younger adolescents than for older adolescents (Hypothesis 5).

Additionally, as adolescents age, their relationships with their parents are likely to change, regardless of the effect of their working status. For example, Dishion and McMahon (1998) argued that parent-child conflict will increase as the adolescent ages and struggles for greater autonomy. Similarly, Patterson and Stouthamer-Loeber (1984) found that older adolescents were monitored significantly less than younger adolescents and were, therefore, more likely to commit delinquent acts. These considerations also suggest that monitoring should have a stronger relationship with substance use for younger adolescents because older adolescents tend to be monitored less than younger adolescents; thus, it would be harder for parents to buffer older children from any risk factor (Hypothesis 6).

METHOD

Data

The data for this study come from the National Study of Youth and Religion, a nationally representative telephone survey of 3,290 U.S. English- and Spanish-speaking teenagers, aged 13 – 17 years, and their parents. The National Study of Youth and Religion was conducted from July 2002 to August 2003 using random-digit-dial and drawing on a sample of randomly generated telephone numbers representative of all noncellular phone numbers in the United States. Eligible households included at least one teenager between the age of 13 and 17 years living in the household for at least 6 months of the year. To randomize responses within households and to help attain representativeness of age and gender, interviewers asked to conduct the survey with the teenager in the household who had the most recent birthday.

The overall response rate of 57% is lower than desired but is similar to that in other current nationally based surveys using similar methodologies. Further comparisons of the National Study of Youth and Religion data with 2002 U.S. Census data on households and with nationally representative surveys of adolescents—such as

Monitoring the Future, the National Household Education Survey, and the National Longitudinal Study of Adolescent Health—confirm that National Study of Youth and Religion provides a nationally representative sample of U.S. teenagers aged 13 – 17 years and their parents without identifiable sampling or nonresponse biases (for details, see Smith & Denton, 2003). For the purposes of the present analyses, 37 fifth and sixth graders (1.1% of original sample) were dropped from the analysis because of their small numbers, resulting in a base study sample of 3,253 teens and parents. A weight was used in all analyses to adjust for number of teenagers in the household, number of household telephone numbers, census region of residence, and household income.

Several distinctive features of the National Study of Youth and Religion made it particularly appealing for the present research. First, using a home-based methodology avoided several of the potential biases inherent in school-based samples. Most notably, all noninstitutionalized teenagers were part of the sampling frame, including school dropouts (1.16% of the original sample) and frequent absentees. Second, in a methodological review of issues surrounding the measurement of parental monitoring, Dishion and McMahon (1998) recommended using both parent and adolescent reports to attain the most accurate construct. Third, all adolescents were asked to confirm that they were in a place in the house that prevented parents from overhearing their answers, thereby helping reduce response bias, especially on particularly sensitive questions, such as alcohol use and parent relationships. Further, the use of trained interviewers and direct telephone interviews allowed for the clarification of potentially ambiguous responses, increasing response validity. These stringent collection standards yielded extremely sparse missing data as a result of refusals or *do not know* responses. For a majority of the measures used in this study, these two categories combined rarely exceed 0.5% of the distribution.

MEASURES

Differential Selection Variables

On the basis of past research (Keithly & Deseran, 1995; Schoenhals et al., 1998), differential selection variables include a set of dummies for gross household income, with 11 categories of $10,000

ranges (income was then linearly transformed by dividing it by 10,000 to ease interpretation); a set of family structure indicator variables, with two-parent non-stepfamilies serving as the reference category; highest parent education in the household (high school degree is used as the reference category); self-reported gender (*female* = 1); race or ethnicity (Whites are reference category); a dichotomous age indicator (*16 – 18* = 1); and student status dummy variable (*dropouts* = 1).

Work Intensity

The intensity of adolescent employment was measured with one open-ended question asking: "During the school year, about how many hours per week did you normally work at a paid job, or did you not have a job?" As shown in Table 1 for the total sample, 22% of the respondents reported

working some hours during the school year. Using a similarly home-based, nationally representative data set (The National Household Survey on Drug Abuse), Wu et al. (2003) reported a comparable 18% of 12- to 17-year-olds working for pay during the school year. Comparisons with data from the National Education Longitudinal Study show similar patterns as well.

This originally continuous variable was broken into categories for several reasons. First, using work intensity in this manner facilitates comparison with similar previous studies, a vast majority of which have performed a similar categorization (Bachman & Schulenberg, 1993; McMorris & Uggen, 2000; Pickering & Vazsonyi, 2002; Roisman, 2002). Further, these studies found significant differences between the different categories of work hours, suggesting that using work hours as a continuous variable will

Table 1. *Weighted Means and Percent Distribution for Predictor Variables for Total Sample and by Work Intensity (N = 3,254)*

				Work Intensity		
				None	Moderate	Intense
Variables	*M*	*SD*	Range	(*n* = 2,505)	(*n* = 482)	(*n* = 261)
Family income	58,083	32,274	5,000 – 105,000	57,523	63,023	55,238
Family structure (%)						
Two-parent biological	54.41			53.80	60.06	50.49
Two-parent nonbiological	19.84			19.90	19.55	20.01
Single parent	25.75			26.31	20.39	29.49
Highest education in the household (%)						
Less than high school	6.55			6.98	4.01	7.26
High school degree	33.84			34.18	30.32	35.95
AA/vocational degree[a]	16.85			16.39	18.49	18.86
BA/BS degree	23.45			22.87	27.12	22.82
Higher degree	19.31			19.57	20.06	15.12
Female	0.49	0.50	0 – 1	0.49	0.52	0.49
Race/ethnicity (%)						
White	66.65			64.83	75.24	68.62
African American	15.55			16.00	12.29	17.57
Hispanic	12.09			13.08	8.05	9.50
Other	5.72			6.11	4.43	4.31
Older age-group	0.41	0.49	0 – 1	0.33	0.60	0.87
School dropout	0.12	0.11	0 – 1	0.01	0.01	0.03
Workers	0.22	0.42	0 – 1			
Work intensity (%)						
Nonworkers	77.72					
Moderate	14.76					
Intense	7.52					

[a]AA = Associate Degree.

result in an estimated parameter that is a composite of two unique parameters.

Second, a set of sensitivity tests was performed to investigate whether such differentiations in groups of work hours existed. Following Mortimer et al. (1996), work intensity was initially examined in comparison to the substance use variables as a set of 5-hour categories (i.e., 0, 1 – 5, 6 – 10, 11 – 15, 16 – 20, 21 – 25, and 26 – 30 hours). Results of these analyses showed that in terms of substance use, students working between 21 and 25 hours are distinct from those working fewer hours but similar to the 26- to 30-hour group. Also, there appeared to be few differences among the groups working between 1 and 20 hours. The measure of work intensity used in this study thus distinguishes among *nonworkers*, students working 1 – 20 hours per week (*moderate workers*), and students working more than 20 hours per week (*intense workers*). As shown in Table 1, such a classification results in about 78% nonworkers, 15% moderate workers, and 8% intense workers. Although there are a relatively low number of intense, especially younger, workers, the absolute size should preclude a significant statistical bias (Hosmer & Lemeshow, 2000).

Parenting Practices

An index consisting of 16 items was constructed as a measure of general family closeness. A few of the typical items are: "How often does your mom/dad hug you?," "How close do you feel to your mom/dad?," and "How often do you talk to your parents about personal subjects?"

Teens in mother-only households were not asked the questions about fathers and vice versa. To avoid restricting the analysis to two-parent families, separate scales were created of the average score on all available items for single-mother, single-father, and two-parent families. The single-mother and single-father scales, therefore, were averaged over the eight items determined by which parent was present, whereas the two-parent family scale was averaged over all the 16 items. These individual scales were then combined into one variable for a scale of average scores on the items, regardless of family type, similar to the construct used by Stattin and Kerr (2000). Each of the scales, before being merged, had alpha levels of .88, .82, and .79 for two parents, single fathers, and single mothers, respectively. The final variable ranges from 0 to 5, with

higher values indicating a more positive home environment. As shown in Table 2, the mean closeness is 3.7, with a standard deviation of 0.75.

The first measure of the general concept *parent monitoring* is a scale of three items from the teen's survey addressing the teens' perceptions of their parent's monitoring. The first two are part of the same question: "How much (do/does) your [parent type] monitor? (a) your music, television, and movie watching and (b) who you hang out with" and "In general, how often (do/does) your [parent type] know what you are actually doing when you're not at home?" This index is a measure of teens' perceptions of both their parent's knowledge and monitoring. The possible responses range from 0 (*never*) to 4 (*always*), with a mean of 2.61 and a standard deviation of 0.88.

The alpha for this measure is .59, which is somewhat low. As Carmines and Zeller (1979) point out, however, alpha is directly related to the number of items included in the scale. As a further check of reliability, all parental behavior scales were tested and satisfied principal components analysis criteria for assessing scale reliability (Carmines & Zeller).

To assess the direct monitoring activities of parents, an index was created combining two questions: "How much do you monitor [your teen]'s television and movie watching?" and "How much do you monitor [your teen]'s Internet use?" Each had five possible responses coded similarly to the first measure of monitoring, and the composite has a mean of 2.62, a standard deviation of 1.01, and an alpha of .61.

The final parent monitoring behavior index is a combination of two questions designed to measure how much parents talk to their children. The questions are: "How often, if at all, do you to talk with [your teen] about potentially sensitive subjects, such as friendships, dating, or drinking?" and "How many times, if ever, have you talked with [your teen] about sex?" The alpha for this index was .61, the mean of 2.81, and the standard deviation is 0.77 on a 0 (*never*) to 4 (*very often*) scale.

Use of Alcohol and Marijuana

Drinking status and levels of drinking were measured using the same questionnaire item: "How often, if it at all, do you drink alcohol, such as beer, wine, or mixed drinks?" Drinking status is a dichotomous exposure variable, with all those who self-reported *never* coded as 0 and those

Table 2. *Weighted Means and Percent Distribution for Substance Use and Parent Relationship Measures for Total Sample, by Age, and by Work Intensity (N = 3,254)*

| Variables | *M* | *SD* | Range | α | Age-Groups[a] | | Work Intensity | | |
					13 – 15 years ($n = 1,917$)	16 – 18 years[b] ($n = 1,335$)	None ($n = 2,505$)	Moderate ($n = 482$)	Intense ($n = 261$)
Parent relationships[c]									
Household closeness	3.7	0.75	0 – 5	.83	3.82	3.56	3.74	3.67	3.38
Teen report of monitoring	2.61	0.88	0 – 4	.59	2.82	2.29	2.69	2.47	2.17
Parent report of monitoring	2.62	1.06	0 – 4	.61	2.80	2.34	2.68	2.51	2.12
Parents talking to teens	2.81	0.77	0 – 4	.61	2.79	2.88	2.80	2.88	2.85
Substance use[d]									
Drinkers	0.38	0.48	0 – 1		0.28	0.51	0.34	0.44	0.64
Levels of drinking (%)			0 – 2						
Never	62.50				71.76	49.20	66.35	55.59	35.92
Moderate	25.16				19.92	32.70	23.25	29.73	36.67
Heavy	12.33				8.32	18.10	10.40	14.68	27.42
Marijuana users	0.25	0.43	0 – 1				0.21	0.26	0.57
Levels of marijuana use (%)			0 – 2						
Never	75.33				82.98	64.29	76.68	73.98	43.14
Experimenters	14.02				10.38	19.28	12.40	15.72	27.90
Continual	10.65				6.64	16.43	8.92	10.29	28.96

[a]All differences between age-groups are significant at $p > .001$ (two-tailed t tests). [b]The sampling age range was from 13 to 17 years, but in the time between initial contact and actual survey, a small number (33) of the 17-year-old participants had birthdays and were thus 18 at time of the interview. [c]All mean differences in work intensity categories are significant, except the variable parent talking to teen, at $p > .001$ (analysis of variance). [d]All differences in work intensity categories are significant at $p > .001$ (χ^2 test).

reporting *any drinking* coded as 1. Levels of drinking is a recategorization of the possible responses so that moderate drinkers are those who responded as drinking *a few times a year* or *about once a month*, whereas heavy drinkers are those who reported drinking *a few times a month*, *about once a week*, or *almost every day*. These cutoffs were used to distinguish occasional drinkers from heavy drinkers, given evidence for increased short- and long-term risks among the latter group (see Windle, 1999, for review). The distributions of these variables are listed in Table 2.

The other dependent variables, marijuana use status and levels of marijuana use, are measured in a similar fashion, although the question is worded slightly differently. Respondents were asked, "How often, if ever, have you used marijuana?" Again, marijuana use status is a dichotomous exposure variable, whereas levels of marijuana use is a classification that distinguishes abstainers, those who report only trying it once or twice (experimenters), and those who report using it occasionally and regularly (continual users).

RESULTS

Taking into account sociodemographic factors that might be associated with work intensity and parental relationships or substance use, or both (Hypothesis 1), these analyses focus on whether parenting practices mediate (Hypothesis 2) and moderate (Hypothesis 3) the link between work intensity and substance use, whether parental closeness and monitoring interact significantly in either of these processes (Hypothesis 4), and whether the direct association and the magnitude of mediation or moderation differ significantly between younger and older workers (Hypotheses 5 and 6, respectively).

Descriptive statistics provide initial support for the hypothesized relationships. First, Table 1 provides evidence of systematic differences in work intensity by some of the selection variables. χ^2 tests reveal significant differences in work intensity by age, student status, and race ($p < .01$). For race, a post hoc Scheffe test shows that Hispanics are significantly less likely to be working more intensively than Whites,

with no differences in the other groups ($p <$ .01). Similar tests also show no significant differences in work intensity by income, parent education, and family structure. These relationships suggest that certain demographic factors could be related to work intensity, thus supporting their inclusion as controls in the multivariate models.

Table 2 indicates that intense workers experience significantly lower mean levels of both parental closeness and monitoring compared to moderate and nonworkers. Table 2 also shows that intense workers use both substances at significantly higher rates than moderate and nonworkers. These descriptive patterns suggest that there may indeed be relationships among work intensity, parenting practices, and substance use, a possibility we now examine with multivariate models.

Parenting Practices as Mediators of Work Intensity and Substance Use

To test the mediation hypothesis, a series of models predicting the substance use variables were estimated: Model 1 includes only the family control variables and Model 2 adds the teen characteristic and work intensity variables. The final model (Model 3) presents all parenting variables entered as set, representing the overarching collective of parenting behaviors. Because entering the mediating variables in this way prohibits using a formal test of mediation, such as the Sobel test (Preacher & Hayes, 2004), the informal criteria established by Baron and Kenny (1986) are used throughout to determine mediation (see Kenny, Kashy, & Bolger, 1998, for a similar explanation with multiple mediator variables). Further, to minimize the risk of multicollinearity, parent practices variables were standardized about their mean.

All tables report odds ratios, which, when subtracted from 1 and multiplied by 100, can be interpreted as the percent increase or decrease in the odds of using the particular substance (Pampel, 2000). To facilitate an explicit comparison between intense and moderate workers, the reference category for the work intensity variables is intense workers. Although nonworkers are often designated as the reference category, this analysis focuses on the differences between levels of work intensity, especially those between moderate and intense workers. Finally, list-wise deletion was employed, which resulted in the elimination of

53 cases (1.6% of the sample) in the final drinking models and 57 cases (1.75% of the sample) in the marijuana use models.

Models 1 and 2 in Table 3 show that family and teen characteristics are related to drinking. Interestingly, higher incomes and being in a single-parent family both increase the likelihood of and frequency of drinking. Only children with parents who have more than a high school degree and African Americans are significantly less likely to drink or to drink as frequently. Thus, there is some evidence of preexisting differences in the adolescents who drink and drink at higher rates.

Models 1 and 2 in Table 4 further support the selection hypothesis, as they indicate that being in a single-parent home, having a stepfamily, and dropping out of school are strongly related to increased rates of and frequency of marijuana use. Conversely, girls, African Americans, and adolescents with highly educated parents are much less likely to use marijuana or to use it as frequently. None of the selection variables that are significantly related to substance use are also related to increased work intensity, which reduces concerns that any relationship between the two is spurious because of sociodemographic factors.

Model 2 in Table 3 also shows that even when controlling for these selection factors, not working and working fewer than 20 hours per week both significantly reduce the odds of drinking and of drinking more frequently compared to students working more than 20 hours per week. When the set of parenting practices is entered into the model, however, the relationship between moderate work and drinking, as well as for levels of drinking, is reduced to insignificance. Further, the magnitude of the relationship between moderate work and drinking decreased by 24% and 27% for levels of drinking, satisfying the standard requirements for detecting mediation (Baron & Kenny, 1986). In additional analyses with nonworkers as the reference category (results not shown), a similar pattern was found: When parenting practices were entered into the model, moderate workers' significant association with drinking disappeared. These results indicate that the direct relationship between moderate work and drinking is explained by its negative association with parenting practices, supporting Hypothesis 2. The relationship between nonworkers and intense workers is not mediated by parenting practices, which, according to the conceptual model, is not surprising because nonworkers

Table 3. *Summary of Logistic Regression Analysis Variables Predicting Drinking and Levels of Drinking*

Predictor[a]	Drinking			Levels of Drinking		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Income[b]	1.07*** (1.03 – 1.12)	1.07*** (1.02 – 1.11)	1.07*** (1.02 – 1.11)	1.07*** (1.03 – 1.11)	1.06** (1.02 – 1.11)	1.05* (1.01 – 1.10)
Family structure (two-parent biological)						
Two-parent nonbiological	1.12 (0.90 – 1.40)	1.22 (0.97 – 1.55)	1.03 (0.80 – 1.34)	1.08 (0.87 – 1.33)	1.16 (0.93 – 1.44)	0.95 (0.75 – 1.21)
One parent	1.31* (1.05 – 1.63)	1.50** (1.18 – 1.90)	1.43** (1.11 – 1.85)	1.31* (1.05 – 1.64)	1.48*** (1.18 – 1.87)	1.42** (1.11 – 1.81)
Highest education in household (high school degree)						
Less than high school	1.16 (0.79 – 1.69)	1.07 (0.72 – 1.62)	1.24 (0.83 – 1.87)	1.10 (0.78 – 1.55)	1.02 (0.71 – 1.46)	1.13 (0.78 – 1.62)
Associate/vocational degree	0.82 (0.65 – 1.05)	0.81 (0.62 – 1.05)	0.84 (0.63 – 1.11)	0.83 (0.66 – 1.05)	0.82 (0.64 – 1.05)	0.87 (0.67 – 1.13)
BA/BS degree	0.8 (0.63 – 1.02)	0.76* (0.59 – 0.98)	0.83 (0.63 – 1.09)	0.81 (0.64 – 1.03)	0.77* (0.60 – 0.98)	0.87 (0.67 – 1.13)
Higher degree	0.72* (0.54 – 0.96)	0.67* (0.50 – 0.92)	0.72 (0.52 – 1.01)	0.73* (0.55 – 0.97)	0.69* (0.51 – 0.92)	0.76 (0.56 – 1.04)
Female	0.93 (0.78 – 1.12)	0.93 (0.78 – 1.12)	0.94 (0.78 – 1.14)		0.89 (0.75 – 1.05)	0.88 (0.74 – 1.06)
Race/ethnicity (White)						
African American	0.48*** (0.37 – 0.62)	0.48*** (0.37 – 0.62)	0.45*** (0.34 – 0.60)		0.50*** (0.38 – 0.64)	0.48*** (0.36 – 0.65)
Hispanic	1.10 (0.82 – 1.46)	1.10 (0.82 – 1.46)	1.12 (0.83 – 1.51)		1.10 (0.84 – 1.44)	1.11 (0.85 – 1.47)
Other	1.10 (0.72 – 1.62)	1.10 (0.72 – 1.62)	1.03 (0.70 – 1.53)		1.05 (0.71 – 1.55)	1.00 (0.69 – 1.45)
Older age-group	2.29*** (1.88 – 2.78)	2.29*** (1.88 – 2.78)	1.67*** (1.36 – 2.06)		2.23*** (1.85 – 2.70)	1.59*** (1.29 – 1.94)
School dropout	1.07 (0.45 – 2.58)	1.07 (0.45 – 2.58)	0.96 (0.34 – 2.69)		1.30 (0.53 – 3.20)	1.20 (0.44 – 3.28)
Work intensity (intense workers)						
Nonworkers	0.42*** (0.30 – 0.59)	0.42*** (0.30 – 0.59)	0.55** (0.38 – 0.79)	0.43*** (0.32 – 0.58)	0.43*** (0.32 – 0.58)	0.59*** (0.43 – 0.81)
Moderate workers	0.55** (0.38 – 0.81)	0.55** (0.38 – 0.81)	0.68 (0.45 – 1.04)	0.56*** (0.40 – 0.79)	0.56*** (0.40 – 0.79)	0.71 (0.49 – 1.02)
Household closeness[c]			0.75*** (0.67 – 0.83)			0.73*** (0.66 – 0.81)
Teen report of monitoring			0.57*** (0.51 – 0.64)			0.57*** (0.52 – 0.64)
Parent report of monitoring			0.90* (0.82 – 0.99)			0.90* (0.81 – 0.99)
Parents talking with teens			1.30*** (1.17 – 1.44)			1.30*** (1.18 – 1.43)
n	3,241	3,210	3,200	3,241	3,210	3,200

Note: Analyses include survey weight. Odds ratios are presented, with confidence intervals given in parentheses. All models *F* is significant at $p > .05$ (two tailed).
[a] Reference group is given in parentheses (under the Indicator column). [b] Income is in ten thousands. [c] All parenting measures have been standardized.

Table 4. *Summary of Logistic Regression Analysis for Variables Predicting Marijuana Use and Levels of Use*

Predictor[a]	Marijuana Use			Levels of Marijuana Use		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Income[b]	1.02 (0.98 – 1.06)	1.02 (0.97 – 1.07)	1.02 (0.97 – 1.07)	1.02 (0.97 – 1.06)	1.02 (0.97 – 1.07)	1.02 (0.97 – 1.07)
Family structure (two-parent biological)						
Two-parent nonbiological	1.59*** (1.25 – 2.02)	1.73*** (1.33 – 2.23)	1.48** (1.11 – 1.96)	1.54*** (1.21 – 1.95)	1.69*** (1.32 – 2.16)	1.43** (1.09 – 1.87)
One parent	1.94*** (1.52 – 2.74)	2.07*** (1.59 – 2.69)	1.98*** (1.50 – 2.64)	1.88*** (1.48 – 2.37)	1.95*** (1.52 – 2.51)	1.88*** (1.44 – 2.44)
Highest education in household (high school degree)						
Less than high school	1.23 (0.84 – 1.82)	1.29 (0.85 – 1.94)	1.56* (1.01 – 2.41)	1.08 (0.78 – 1.51)	1.09 (0.77 – 1.55)	1.28 (0.88 – 1.85)
Associate/vocational degree	0.84 (0.64 – 1.09)	0.82 (0.62 – 1.08)	0.90 (0.66 – 1.22)	0.86 (0.66 – 1.12)	0.84 (0.64 – 1.10)	0.90 (0.67 – 1.21)
BA/BS degree	0.67** (0.52 – 0.88)	0.61*** (0.46 – 0.82)	0.69* (0.50 – 0.95)	0.69** (0.53 – 0.91)	0.64** (0.48 – 0.85)	0.72* (0.53 – 0.98)
Higher degree	0.55*** (0.39 – 0.77)	0.50*** (0.35 – 0.72)	0.55*** (0.38 – 0.81)	0.56*** (0.40 – 0.79)	0.51*** (0.36 – 0.73)	0.56*** (0.38 – 0.81)
Female		0.70*** (0.57 – 0.86)	0.67*** (0.54 – 0.83)		0.66*** (0.54 – 0.80)	0.62*** (0.50 – 0.76)
Race/ethnicity (White)						
African American		0.76* (0.58 – 0.99)	0.75 (0.56 – 1.00)		0.74* (0.57 – 0.96)	0.72* (0.54 – 0.95)
Hispanic		0.93 (0.68 – 1.27)	0.98 (0.70 – 1.37)		0.92 (0.68 – 1.24)	0.96 (0.70 – 1.32)
Other		1.16 (0.74 – 1.80)	1.14 (0.75 – 1.75)		1.08 (0.71 – 1.63)	0.99 (0.67 – 1.46)
Older age-group		2.29*** (1.85 – 2.84)	1.56*** (1.23 – 1.98)		2.25*** (1.82 – 2.79)	1.53*** (1.21 – 1.94)
School dropout		5.05*** (1.99 – 12.82)	4.56*** (1.75 – 11.90)		4.89*** (2.26 – 10.57)	4.06*** (1.79 – 9.16)
Work intensity (intense workers)						
Nonworkers		0.30*** (0.21 – 0.41)	0.38*** (0.27 – 0.54)		0.32*** (0.24 – 0.43)	0.42*** (0.31 – 0.58)
Moderate workers		0.35*** (0.24 – 0.51)	0.41*** (0.27 – 0.62)		0.37*** (0.26 – 0.53)	0.44*** (0.30 – 0.65)
Household closeness[c]			0.77*** (0.69 – 0.87)			0.76*** (0.68 – 0.86)
Teen report of monitoring			0.59*** (0.52 – 0.67)			0.60*** (0.53 – 0.67)
Parent report of monitoring			0.74*** (0.67 – 0.83)			0.75*** (0.67 – 0.83)
Parents talking with teens			1.36*** (1.21 – 1.52)			1.39*** (1.24 – 1.55)
n	3,237	3,206	3,196	3,237	3,206	3,196

Note: Analyses include survey weight. Odds ratios are presented, with confidence intervals given in parentheses. All models F is significant at $p > .05$ (two tailed). [a]Reference group is given in parentheses (under the Indicator column). [b]Income is in ten thousands. [c]All parenting measures have been standardized.

*p < .05. **p < .01. ***p < .001.

should not have suffered from the stressors that might be associated with a breakdown in these relationships as moderate workers may have.

Model 2 in Table 4 similarly indicates that not working and working fewer than 20 hours significantly reduce the odds of marijuana use and of more frequent use, independent of the selection variables. Model 3 shows that once parenting practices are included, the effect of moderate work declines in magnitude by 21% for use and by 22% for frequency of use, but these effects are not reduced to insignificance. Thus, there is some evidence supporting the mediating hypothesis for the marijuana outcomes. Still, as shown by Model 3, the odds associated with both moderate workers and nonworkers, compared to intense workers, remain highly significant and large in magnitude, indicating a negative influence of extreme work intensity on marijuana use, controlling for parenting practices.

To further investigate this relationship between working and marijuana use, models were also tested with nonworkers as the reference group (results not shown). In all these multivariate analyses, moderate work was not significantly related either to marijuana use or to more frequent use. Intense workers, however, were significantly more likely to use marijuana and to use it more frequently even after the parenting practice variables were entered into the model ($p < .01$). Further, the results revealed a similar pattern of mediation: The effect of intense work was reduced in magnitude, but not to insignificance. These results corroborate the original conclusion that there is some mediation, but intense workers are significantly different from both moderate and nonworkers in their association with marijuana use.

Model 3 in Tables 3 and 4 also shows the influence of the parenting practices, controlling for background characteristics and work intensity. For both alcohol and marijuana use, parenting practices remain individually and jointly significant in the final full model. All show the hypothesized direction of the relationship as well, except for Parent Talking to Teens, which indicates that this variable may actually be measuring a reactionary, disciplinarian-type monitoring behavior by parents, rather than a proactive, preventative discussion. Thus, there is support for Hypothesis 2: The relationship between work intensity and alcohol use is explained by the intervening role of deteriorating family relationships, whereas no such support was found with respect to marijuana use.

Interactive Models of Work Intensity and Parenting

Quite apart from a mediating role of parenting practices, it may be that parenting interacts with work intensity to reduce the negative effects of intense work on substance use (Hypothesis 3). To test this possibility, we estimated models with control variables, the work intensity dichotomous variables, parenting practices, and the multiplicative interaction between the work intensity dummies and the parenting practice interaction. Table 5 reports the odds ratios obtained from testing each of these interactive terms separately. Although the results are not directly interpretable without presenting the main effects, these results reveal patterns of significant interactions that were then explored with additional analyses.

Although the interactions between work and parenting are insignificant for both status variables and for level of marijuana use, results suggest the importance of such interactions for levels of drinking. Teen's report of monitoring and no work significantly predict levels of drinking (OR = 0.73), indicating that nonworking adolescents' odds of drinking more heavily are lower when they also have highly monitoring parents. Parent's reports of monitoring and moderate work significantly interact such that moderate workers with highly monitoring parents are 71% less likely to drink more frequently. These results provide evidence that monitoring does indeed moderate the link between work intensity and levels of drinking when adolescents are either moderate or nonworkers. For nonworkers, simply perceiving their parents as highly monitoring reduces their odds of drinking, whereas actual monitoring behaviors have a stronger relationship among moderate workers.

Examining the lower panel of Table 5, results provide support for Hypothesis 4 in terms of alcohol use: Closeness and monitoring interact to significantly decrease the likelihood of drinking and of drinking more frequently. For the two measures of alcohol use, the interaction terms between closeness and teen and parent reports of monitoring are both significant. Specifically, teens who experience high levels of family closeness and whose parents monitor their activities at a high level are 83% and 86% as likely to drink and to drink more frequently, respectively.

Table 5. *Results of Interactive Models Predicting Substance Use Outcomes*

Interaction Terms[a]	Drinking		Levels of Drinking		Marijuana Use	Levels of Marijuana Use
Closeness × No Work	0.81	(0.58 – 1.48)	0.78	(0.59 – 1.02)	0.82 (0.61 – 1.11)	0.78 (0.60 – 1.01)
Closeness × Moderate Work	0.99	(0.66 – 1.48)	1.00	(0.71 – 1.40)	1.07 (0.73 – 1.56)	1.00 (0.71 – 1.41)
Teen's Report × No Work	0.78	(0.53 – 1.14)	0.73*	(0.54 – 0.99)	0.91 (0.65 – 1.28)	0.88 (0.65 – 1.20)
Teen's Report × Moderate Work	0.96	(0.61 – 1.50)	0.97	(0.67 – 1.41)	1.10 (0.72 – 1.68)	1.06 (0.70 – 1.59)
Parent's Report × No work	0.86	(0.64 – 1.16)	0.84	(0.64 – 1.10)	1.15 (0.84 – 1.59)	1.00 (0.77 – 1.30)
Parent's Report × Moderate Work	0.74	(0.51 – 1.08)	0.71*	(0.51 – 0.99)	1.12 (0.76 – 1.65)	0.94 (0.66 – 1.32)
Parents Talking × No Work	0.91	(0.62 – 1.35)	0.95	(0.67 – 1.34)	0.80 (0.54 – 1.19)	0.80 (0.56 – 1.14)
Parents Talking × Moderate Work	0.97	(0.61 – 1.54)	1.03	(0.68 – 1.54)	0.93 (0.58 – 1.51)	0.88 (0.57 – 1.37)
Closeness × Teen's Report	0.83***	(0.75 – 0.92)	0.86**	(0.78 – 0.95)	0.94 (0.85 – 1.05)	0.95 (0.86 – 1.05)
Closeness × Parent's Report	0.87**	(0.79 – 0.95)	0.89**	(0.82 – 0.97)	0.93 (0.84 – 1.02)	0.93 (0.85 – 1.02)
Closeness × Parent's Talking	0.94	(0.86 – 1.04)	0.95	(0.87 – 1.04)	1.04 (0.94 – 1.15)	1.03 (0.93 – 1.13)
n		3,200		3,200	3,196	3,196

Note: Analyses include survey weight. Odds ratios are presented, with confidence intervals given in parentheses.

[a]All pairs entered separately in the final model (including all predictors and main effects) for each outcome.

*$p < .05$. **$p < .01$. ***$p < .001$.

Using parents' reports of monitoring, the interaction terms are around 4% higher in each case.

The significant interaction between parent monitoring and closeness is plotted in Figure 1, using the full equations including the main effects. Monitoring has a particularly strong association with a reduction in drinking when it is also coupled with higher levels of family closeness. The significant interaction term shows that the slopes are significantly different, and further decomposition (Aiken & West, 1991) revealed that the slope for the highest category of closeness was significantly negative ($p < .001$). Therefore, even though both monitoring and closeness have independently significant negative associations with drinking and levels of drinking, adolescents experiencing both at high levels simultaneously are much less likely to drink and to drink frequently. Thus, there is evidence that monitoring operates as a buffer against substance use among teens, and this influence is even stronger when it is connected with high levels of family closeness.

Age-Groups and the Mediating and Moderating Roles of Parenting

Relying on pseudomaturity theory, we hypothesized that mediating and moderating roles of parenting would be stronger among younger workers than among older workers (Hypotheses 5 and 6, respectively). To test the strength of the mediation of monitoring and closeness on work intensity across younger and older respondents, Models 1, 2, and 3 were tested separately for each age-group. If the percent change in the size of the work intensity effect after the parenting variables are entered is larger for the younger group, it would suggest that working is associated with a greater deterioration in family relationships for this group, which would be related to their heightened risk for substance use. This is not the case, however, as there is only a minor difference in the reduction by age-groups. Results show that working is not more damaging to the family relationships of younger adolescents, when compared with their older counterparts, in relation to increased risk of substance use.

To test whether the moderating interrelationship between work intensity and parenting practices and substance use was stronger for younger adolescents, we first examined whether the associations between work intensity and substance use as well as between parenting practices and substance use varied by age. These two relationships can be examined in a preliminary fashion by estimating Model 3 (in Tables 3 and 4) separately for younger and older workers. On the basis of the low numbers of younger heavy drinkers

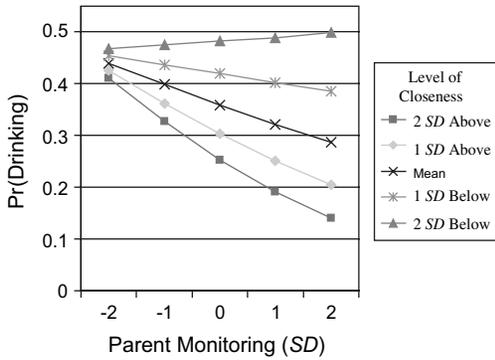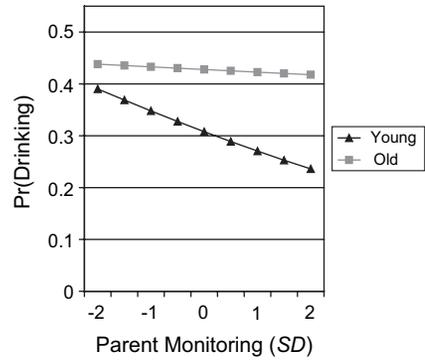FIGURE 1. PREDICTED PROBABILITY OF DRINKING BY CLOSENESS AND PARENT MONITORING.

FIGURE 2. PREDICTED PROBABILITY OF DRINKING BY AGE-GROUPS AND PARENT MONITORING.

and continual marijuana users, only results from the drinking and marijuana status models are reported. These results (not shown) reveal that the effect of parental monitoring and work intensity on substance use differs by age-groups. To test whether these direct associations were significant, an interaction term with the age dummy variable was created for both the parental control measures and the work intensity dummy variables. Using the total sample, these interactive terms were entered into the final model, each term separately, and predicted probability plots were created for each of the significant interaction terms.

For drinking, a significant interaction between age and parents' reports of monitoring was observed ($p < .05$) and is plotted in Figure 2. At first glance, this plot appears to show that older adolescents are more likely to drink at every level of parental monitoring, with this difference increasing at the highest levels of monitoring. Yet using the Johnson-Neyman technique (as outlined in Aiken & West, 1991), it was found that the likelihood of drinking for adolescents younger than 16 years is not significantly different from that for adolescents in the older group when parents are very low monitoring (2 *SD* below the mean), whereas at the mean and higher levels of parental monitoring, older adolescents are significantly more likely to drink ($p < .001$). Further decomposition of this model also showed that the slope for younger adolescents is negative and significantly different from 0 ($p < .001$) but does not reach significance

for older adolescents. Collectively, these results show that in low monitoring families, the likelihood of drinking is similar for older and younger adolescents, but as monitoring increases, this likelihood is significantly reduced for younger adolescents to the point that they are significantly less likely to drink than older adolescents. Hence, this result provides initial support for Hypothesis 5 that monitoring might have a greater moderating relationship among this younger group.

For marijuana use, the significant interaction term was between work intensity and age ($p < .05$), and Figure 3 illustrates this differing effect. For the younger group, any work is significantly related to higher probabilities of using marijuana, with no significant differences between work intensity levels. For the older group, the extent of work intensity is important. Moderate workers are not significantly more likely to use marijuana than nonworkers (their predicted probability of using is actually lower), whereas intense workers have the significantly highest probability of using marijuana ($p < .01$). Comparing the two groups, following Jaccard's (2001) interpretation of the main effects, indicates that the probability of marijuana use is significantly higher for older, intense workers and nonworkers ($p < .05$), but among moderate workers, the difference in likelihood of marijuana use between the two age-groups is not significantly different. This finding also supports Hypothesis 5 by showing that work intensity's relationship with marijuana use varies by age-group.
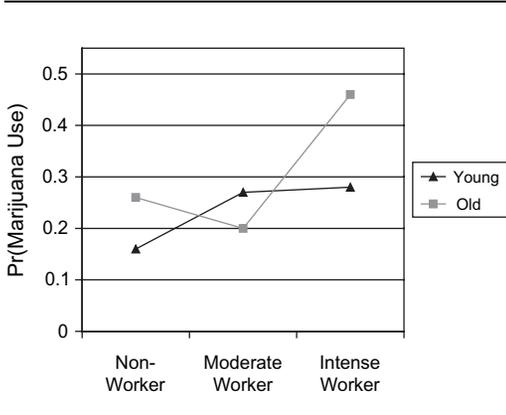
Hypothesis 6 further posits that the moderating relationship between work and substance use should be stronger for younger adolescents. To test this possibility, three-way interaction terms were created between age, work intensity, and parenting practices. These analyses compared nonworkers versus moderate workers because of the low numbers of young, intense workers. No statistically significant relationships were observed. On the basis of statistical issues with three-way interactions—primarily small cell size—we tested models including the work intensity by parenting practices interaction terms for each outcome by age-group and ran the final main effects models for each work and age category separately. There were no systematic patterns in these relationships. Taken as a whole, these analyses indicate that parents do not moderate the relationship between work intensity and substance more for younger adolescents than for older adolescents.

Thus, although the direct relationships between work intensity, parent practices, and substance use may differ by age, the mediational and moderational processes do not. There was no significant evidence for a stronger mediation effect of parent practices in the younger group, and parents did not buffer the effects of work any more so for this group. These findings indicate that the intervening role of parenting practices as a mediator and moderator of work intensity on substance use holds throughout adolescence.

CONCLUSIONS

This study provides insights into the complex relationships between adolescents' search for greater independence and parents' goals of monitoring and controlling this autonomy, a tension explored with respect to adolescent work intensity and substance use. Drawing on new, nationally representative data, the study elucidates the connections among work intensity, parenting, and substance use during high school. The analyses suggest several conclusions and avenues for future research.

First, several sociodemographic factors were found to influence the likelihood of substance use directly. Specifically, adolescents in single-parent homes are more likely to use substances and to use them more frequently than those in two-parent homes. Additionally, African Americans are less likely to use substances than Whites. These findings are especially intriguing, given that these models control for differences in socioeconomic status and parental control, both of which might have been presumed to explain these differential rates of substance use. Both of these significant effects may be connected to the relationship between substance use and the reasons why adolescents move into paid employment and types of employment. For example, adolescents in single-parent families may be forced to take on adult-like roles earlier, including working long hours to help support their family, which might increase exposure to stressors and result in an increased likelihood to use substances. Certain minority groups may be more likely to work to help family businesses, which might strengthen family bonds and decrease their likelihood of substance use. Both of these possibilities are vital avenues for future research.

Second, parent practices mediate the relationship between moderate work intensity and drinking and levels of drinking. Working—whether moderately or intensely—increases the likelihood of alcohol use, but much of this association reflects a deterioration in parenting practices. Specifically, for students who work a moderate amount of hours, their weakened relationship with their parents predicts their increased chances of drinking and of drinking more frequently. In fact, whereas moderate workers are less likely to drink than intense workers, once adjustments are made for parenting practices, no significant difference remains between the two groups. This finding calls attention to the need to incorporate measures of closeness and monitoring when studying the links between work intensity and alcohol use. The mechanism in paid employment

that leads to this deterioration, which could include financial independence and exposure to deviant peers, has not been fully explored in this study. Rather the focus has been the links among work intensity, relationships with parents, and drinking. Investigating the potential causal factors driving this connection is a strategic avenue for future research.

Third, parenting practices moderate the effect of work intensity on levels of drinking. Specifically, direct parental monitoring significantly reduced the odds of being a more frequent drinker among moderate workers. Therefore, even though working a moderate amount of hours can be an elevated risk for some adolescents, parents who maintain high levels of monitoring can serve as a protective factor against this risk. With respect to drinking status, marijuana use, and levels of marijuana use, however, these moderating processes were not observed. Hence, the potential of parents as moderators might be dependent upon the risk behavior in question. Parents may serve as protective factors against the increases from moderate to heavy drinking but not against comparatively more serious types of delinquency, such as any form of marijuana use. Additionally, to the extent that strong mediation processes are at work, parents may be unable to maintain high levels of monitoring and closeness with their intensely employed teenager. Why parenting behaviors do not moderate the link between work intensity and marijuana awaits future research.

The moderating relationship in predicting levels of drinking is an especially intriguing finding, given the evidence for the mediation of moderate work hours by parenting practices. Even though moderate work has been shown to lead to decrements in parenting relationships, thereby increasing the likelihood of heavy drinking, if a parent can maintain high levels of monitoring behaviors, then moderate workers will actually be less likely to be heavy drinkers. Additionally, although nonworkers are significantly less likely to drink than intense workers, this difference is more pronounced when nonworking adolescents' parents are perceived as highly monitoring, again indicating the importance of monitoring in reducing adolescent drinking.

Additionally, previous research suggested that parental monitoring might interact with family closeness such that higher levels of both would be associated with a reduction in substance use. This study provides confirmation of this hypothesis

by showing that for alcohol use, monitoring—whether reported by teen or by parent—provided an additional reduction in the chances of the adolescent drinking when linked with higher levels of closeness.

This study also found that the direct associations between work intensity, parenting practices, and substance use were stronger for younger adolescents than for older adolescents. Parent monitoring is especially important for the younger age-group in terms of drinking. Interestingly, the interaction of monitoring actions (i.e., monitoring TV and Internet usage) with age was significantly associated with substance use, whereas the interaction with the more commonly used measure of parental knowledge (i.e., children's perception of parents' awareness of their activities) was not. Thus, the actual monitoring of activities is particularly important for younger adolescents.

Furthermore, among the older group, only extreme work intensity increases the chances of marijuana use. In fact, some work appears to benefit older adolescents, supporting previous findings by Mortimer et al. (1996). Yet, for younger adolescents, any amount of paid employment increases the risk of using marijuana. This finding lends support to pseudomaturity theory, as older adolescents may be more adept than younger adolescents at handling the stressors associated with moderate work intensity, although still not fully prepared to deal with working more than 20 hours per week.

Additionally, we hypothesized that the mediational and moderational relationship of parenting practices would be stronger for younger adolescents than for older adolescents. There was no evidence, however, that age is a mediator or moderator of the interrelationships among work intensity, parent practices, and substance use. No major differences in the mediational models were observed between age-groups. Further, the three-way interaction terms between age, work intensity, and parenting practices showed no significant systematic patterns of association with any of the substance use outcomes.

In interpreting these findings, caution is warranted because the analyses are based on cross-sectional data. The study cannot examine change in substance use or account for comprehensive preexisting differences between students in various work intensity categories. Parenting practices may also be a response to, as well as a consequence of, work intensity. Mortimer and

Shanahan (1994), using longitudinal data, however, found no effect of parent-child relationships on future work intensity. This result, combined with the breadth of evidence indicating the effect of work on family relationships, supports the specification positing parenting as a mediator between work and substance use.

The conclusions drawn from this study have several important implications. First, the link between work intensity and drinking needs to be reinterpreted. What is normally described as a direct relationship should take into consideration parents' intervention. Second, in addition to the typical additive effects of parenting practices, interaction effects between closeness and monitoring should also be examined. Third, age is a key variable in explaining the relationships among work intensity, parent practices, and substance use. Although many studies limit their attention to a small age range, differences between older and younger adolescents with respect to work intensity, parenting practices, and substance use are important. Any form of paid employment may be a risky step for younger adolescents' chances of substance use, but moderate work hours may represent a natural progression on the path toward greater autonomy for older adolescents. Taken together, these findings add significantly to the literature on work intensity and substance use and provide insights into the struggle between parents and their adolescents as the latter begin striving for greater independence and autonomy.

NOTE

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression*: *Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Aseltine, R. H. Jr. (1995). A reconsideration of parental and peer influences on adolescent deviance. *Journal of Health and Social Behavior*, *36*, 103 – 121.

Bachman, J. G., & Schulenberg, J. E. (1993). How part-time work intensity relates to drug use, problem behavior, time use, and satisfaction among high school seniors: Are these consequences or merely correlates? *Developmental Psychology*, *29*, 220 – 235.

Bailey, S. L., & Hubbard, R. L. (1990). Developmental variation in the context of marijuana initiation among adolescents. *Journal of Health and Social Behavior*, *31*, 58 – 70.

Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family*, *54*, 763 – 776.

Barnes, G. M., Reifman, A. S., Farrell, M. P., & Dintcheff, B. A. (2000). The effects of parenting on the development of adolescent alcohol misuse: A six-wave latent growth model. *Journal of Marriage and the Family*, *62*, 175 – 186.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173 – 1182.

Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *Journal of Adolescent Health*, *33*, 60 – 70.

Bryant, A. L., Schulenberg, J. E., O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (2003). How academic achievement, attitudes, and behaviors relate to the course of substance use during adolescence: A 6-year, multiwave national longitudinal study. *Journal of Research on Adolescence*, *13*, 361 – 397.

Call, K. T. (1996). Adolescent work as an "arena of comfort" under conditions of family discomfort. In J. T. Mortimer & M. D. Finch (Eds.), *Adolescents, work, and family: An intergenerational developmental analysis* (pp. 129 – 166). Thousand Oaks, CA: Sage.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment*. Thousand Oaks, CA: Sage.

Dishion, T. J., & McMahon, R. J. (1998). Parental monitoring and the prevention of child adolescent problem behavior: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review*, *1*, 61 – 75.

Furstenberg, F. F., Cook, T. D., Eccles, J., Elder, G. H. Jr., & Sameroff, A. A. (1999). *Managing to*

make it: Urban families in high risk neighborhoods. Chicago: University of Chicago Press.

Greenberger, E., & Steinberg, L. D. (1986). *When teenagers work: The psychological and social costs of adolescent employment*. New York: Basic Books.

Hagan, J., & Wheaton, B. (1993). The search for adolescent role exits and the transition to adulthood. *Social Forces*, *71*, 955 – 980.

Hirschi, T., (1969). *Causes of delinquency*. Berkeley: University of California Press.

Hosmer, D. W., & Lemeshow, S. (2000) *Applied logistic regression*. New York: Wiley.

Jaccard, J., (2001). *Interaction effects in logistic regression*. Thousand Oaks, CA: Sage.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic Press.

Keithly, D. C., & Deseran, F. A. (1995). Households, local labor markets, and youth labor force participation. *Youth & Society*, *26*, 463 – 492.

Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 233 – 265). Boston: McGraw-Hill.

Kerns, K. A., Aspelmeier, J. E., Gentzler, A. L., & Grabill, C. M. (2001). Parent-child attachment and monitoring in middle childhood. *Journal of Family Psychology*, *15*, 69 – 81.

Kerr, M., & Stattin, H. (2000). What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Developmental Psychology*, *36*, 366 – 380.

Krohn, M. D., Lizotte, A. J., & Perez, C. M. (1997). The interrelationship between substance use and precocious transitions to adult statuses. *Journal of Health and Social Behavior*, *38*, 87 – 103.

Largie, S., Field, T., Hernandez-Reif, M., Sanders, C. E., & Diego, M. (2001). Employment during adolescence is associated with depression, inferior relationships, lower grades, and smoking. *Adolescence*, *36*, 395 – 401.

McMorris, B. J., & Uggen, C. (2000). Alcohol and employment in the transition to adulthood. *Journal of Health and Social Behavior*, *41*, 276 – 294.

Mihalic, S. W., & Elliot, D. (1997). Short- and long-term consequences of adolescent work. *Youth & Society*, *28*, 464 – 499.

Mortimer, J. T. (2004). *Working and growing up in America (Adolescent lives)*. Cambridge, MA: Harvard University Press.

Mortimer, J. T., Finch, M. D., Ryu, S., Shanahan, M. J., & Call, K. T. (1996). The effects of work intensity on adolescent mental health, achievement, and behavioral adjustment: New evidence from a prospective study. *Child Development*, *67*, 1243 – 1261.

Mortimer, J. T., & Shanahan, M. J. (1994). Adolescent work experience and family relationships. *Work and Occupations*, *21*, 369 – 384.

National Research Council. (1998). *Protecting youth at work: Health, safety and development of working children and adolescents in the United States*. Washington, DC: National Academy Press.

Newcomb, M. D. (1996). Pseudomaturity among adolescents: Construct validation, sex differences, and associations in adulthood. *Journal of Drug Issues*, *26*, 477 – 504.

Newcomb, M. D., & Bentler, P. M. (1988). *Consequences of adolescent drug use: Impact on the lives of young adults*. Newbury Park, CA: Sage.

Pampel, F. C. (2000). *Logistic regression: A primer*. Thousand Oaks, CA: Sage.

Paschall, M. J., Ringwalt, C., & Flewelling, R. L. (2002). Explaining higher levels of alcohol use among working adolescents: An analysis of potential explanatory variables. *Journal of Studies on Alcohol*, *63*, 169 – 178.

Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development*, *55*, 1299 – 1307.

Pickering, L. E., & Vazsonyi, A. T. (2002). The impact of adolescent employment on family relationships. *Journal of Adolescent Research*, *17*, 196 – 218.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*, 717 – 731.

Panel on Youth of the President's Science Advisory Committee. (1974). *Youth: Transition to adulthood*. Chicago: University of Chicago Press.

Ramirez, J. R., Crano, W. D., Quist, R., Burgoon, M., Alvaro, E. M., & Grandpre, J. (2004). Acculturation, familism, parental monitoring, and knowledge as predictors of marijuana and inhalant use in adolescents. *Psychology of Addictive Behaviors*, *18*, 3 – 11.

Roisman, G. I. (2002). Beyond main effects models of adolescent work intensity, family closeness, and school disengagement: Mediational and conditional hypothesis. *Journal of Adolescent Research*, *17*, 331 – 345.

Safron, D. J., Schulenberg, J. E., & Bachman, J. G. (2001). Part-time work and hurried adolescence: The links among work intensity, social activities,

health behaviors, and substance use. *Journal of Health and Social Behavior*, *42*, 425 – 449.

Sampson, R. J., & Laub, J. H. (1993). *Crime in the making: Pathways and turning points through life*. Cambridge, MA: Harvard University.

Schoenhals, M., Tienda, M., & Schneider, B. (1998). The educational and personal consequence of adolescent employment. *Social Forces*, *77*, 723 – 761.

Shanahan, M. J., Elder, G. H. Jr., Burchinal, M., & Conger, R. D. (1996a). Adolescent earnings and relationships with parents: The work-family nexus in urban and rural ecologies. In J. T. Mortimer & M. D. Finch (Eds.), *Adolescents, work, and family: An intergenerational developmental analysis* (pp. 97 – 128). Thousand Oaks, CA: Sage.

Shanahan, M. J., Elder, G. H. Jr., Burchinal, M., & Conger, R. D. (1996b). Adolescent paid labor and relationships with parents: Early work-family linkages. *Child Development*, *67*, 2183 – 2200.

Smith, C., & Denton, M. L. (2003). *Methodological design and procedures for the National Study of Youth and Religion*. Chapel Hill, NC: National Study of Youth and Religion.

Stattin, H., & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, *71*, 1072 – 1085.

Steinberg, L., & Dornbusch, S. M. (1991). Negative correlates of part-time employment during adolescence: Replication and elaboration. *Developmental Psychology*, *27*, 304 – 313.

Steinberg, L., Fegley, S., & Dornbusch, S. M. (1993). Negative impact of part-time work on adolescent adjustment: Evidence from a longitudinal study. *Developmental Psychology*, *29*, 171 – 180.

Valois, R. F., Dunham, A. C., Jackson, K. L., & Waller, J. (1999). Association between employment and substance abuse behaviors among public high school adolescents. *Journal of Adolescent Health*, *25*, 256 – 263.

Windle, M. (1999). *Alcohol use among adolescents*. Thousand Oaks, CA: Sage.

Windle, M. & Davies, P. T. (1999). Developmental theory and research. In K. E. Leoard & H. T. Blane (Eds.), *Psychological theories of drinking and alcoholism* (2nd ed., pp. 164 – 202). New York: Guilford.

Windle, M., & Windle, R. C. (2003). Alcohol and other substance use and abuse. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell handbook of adolescence* (pp. 450 – 469). Malden, MA: Blackwell.

Work-Education Consortium of the National Manpower Institute. (1978). *Work and service experience for youth*. Washington, DC: Author.

Wu, L., Schlenger, W. E., & Galvin, D. M. (2003). The relationship between employment and substance use among students aged 12 to 17. *Journal of Adolescent Health*, *32*, 5 – 15.