The Influence of Supervisory Neglect on Subtypes of Emerging Adult Substance Use After Controlling for Familial Factors, Relationship Status, and Individual Traits

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Abstract

Background—This study is the first to explore how child supervisory neglect influences patterns of substance use among young adults. This study investigated patterns of substance use among males and females, 18 to 24 years old, after controlling for adolescent parental drinking, living with parents, relationship status, delinquency, and depression.

Methods—The study sample ($N = 10,618$) included individuals who participated in Waves I (1994–1995) and III (2001–2002) of the National Longitudinal Study of Adolescent Health (Add Health). The study used latent class analysis to ascertain how patterns of substance use emerged as distinct classes.

Results—For both males and females, we identified the following 4 classes of substance use: (1) heavy polysubstance use, (2) moderate polysubstance use, (3) alcohol and marijuana, and (4) low-use substance use patterns. Multinomial logistic regression indicated that, for both males and females 18 to 24 years old, experiencing supervisory neglect, being depressed, being single, and engaging in adolescent delinquency serve as risk factors for heavy polysubstance use class membership. Conversely, being black or Hispanic lowered the likelihood of polysubstance use for males and females. For females only, living with parents served as a protective factor that reduced the risk of membership in heavy polysubstance use, moderate polysubstance use, and alcohol and marijuana classes. For males only, being less educated increased the risk of heavy polysubstance use class membership.

Conclusions—Results from this exploratory study underscore the enduring effect of supervisory neglect on substance use among male and female young adults. Future studies should explore whether these relationships hold over time.

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INTRODUCTION

Although supervisory neglect is the most common form of child maltreatment,[1,2] studies have not examined how supervisory neglect influences patterns of substance use for male and female young adults (18 to 24 years old). The American Professional Society on the Abuse of Children[3] advises examining supervisory neglect separately from other forms of neglect, so our study focuses solely on supervisory neglect, that is, inadequate adult supervision of a child, including abandonment.[4] Supervisory neglect encompasses discrete events that can have immediate and sometimes disastrous consequences.[3]

Because some young adults may use more types of substances than others, focusing on a single drug or aggregating drug use into a scale may obscure those differences. Scholars have employed latent class (LCA) to investigate patterns of substance use. Although many studies using LCA have included 3 or fewer substances,[5,6] we focus on studies that include a wider range of substances. These LCA studies of adolescents and adults have found 3 to 5 subtypes or "*classes*" of substance use. Although the number of classes varied, each study contains a class of low-users (17% to 79.6%) and a class of heavy polysubstance users (2% to 29%).[7,8] The classes between these 2 extremes include moderate polysubstance use,[9] alcohol and marijuana use,[7,10] and stimulant use and sedative use.[9] We define polysubstance use as using a variety of substances over a period of time, either concurrently or simultaneously. Although polysubstance dependence is no longer a diagnosis in the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th Edition),[11] and polysubstance abuse was not included in the DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision),[12] poly-substance use is important to investigate because it has been associated with higher rates of substance dependence, co-occurring depression, and conduct disorder.[9]

We apply the Social Development Model, which combines central components of social learning, social control, and differential association theories to explain how risk and protective factors affect patterns of substance use.[13] Within the Social Development Model, socialization units, such as family members or romantic partners, may influence substance use behaviors.[14] Supervisory neglect is parental failure to protect children from harmful situations or people,[1] which compromises familial bonding and may increase substance abuse among neglected youth.[15] On the other hand, families that are cohesive, warm, or bonded during childhood have been found to protect against substance use for young adults,[14] along with living with one's parents.[16,17] A serious romantic relationship may also protect against substance abuse.[18,19] Conversely, a familial risk factor for substance use among young adults is parental drinking.[20]

The Social Development Model also posits that traits, such as depression,[14] antisocial personality,[21] and demographic characteristics (i.e., age, sex, race, and education), can either foster or thwart substance use.[14] Studies have linked depression with alcohol consumption,[22]

illicit drug use,[23] and polysubstance use.[9] Likewise, studies have found that adolescent delinquency predicts a greater risk of young adult substance use.[6,24]

This study focuses on young adulthood, the period that follows adolescence and precedes adulthood,[25] because substance use is especially pronounced during young adulthood, but drops precipitously afterward.[26] Some young adults view this period of life as a time to experiment with risky behaviors, such as substance use, because parental surveillance is lessened.[25]

This study also examines the effects of males and females separately because males typically use more psychoactive substances than females,[27] and because men and women may have distinct physiological reactions to substances.[28] Moreover, supervisory neglect may impact substance use differentially based on sex. In addition, studies have found that young adults who are white are at greater risk of using substances than their black or Hispanic counterparts.[29,30] Finally, educational attainment can signify a lower risk for substance use because young adults who earn a college degree could be considered more "conventional" than those who completed less formal education.[31]

Supervisory Neglect

To date, two studies have focused on the relationship between supervisory neglect and substance use. In the first, Shand et al.[32] interviewed 1513 heroin-dependent individuals regarding their substance use and experiences of maltreatment. Although the study did not explicitly define supervisory neglect, it did indicate that supervisory neglect occurred before the age of 18. They found that 37.9% of the sample had reported experiencing supervisory neglect as children. In the second, Hussey et al.[33] used data from Wave III of the National Longitudinal Study of Adolescent Health (Add Health) to investigate how various forms of child maltreatment, including supervisory neglect, influence substance use. Hussey et al. considered supervisory neglect to have occurred when a child had been inadequately supervised by a parent or care-giver prior to the 6th grade. They found that supervisory neglect was associated with regular smoking, binge drinking, and marijuana use.

Although both studies have furthered our understanding of the relationship between substance use and supervisory neglect, each has limitations. Shand et al. included experiences of supervisory neglect ranging up to 17, which does not clarify the distinct effects of childhood supervisory neglect. Hussey et al. included any single incident of supervisory neglect before the 6th grade, which dilutes the experiences of individuals who have endured more serious neglect. Additionally, Shand et al.'s study focused solely on individuals who had participated in pharmacotherapy maintenance treatment for heroin dependence, which limits the generalizability of the results. Neither study examined subtypes of substance use, which would distinguish qualitatively distinct patterns of usage, and would convey characteristics of young adults who are poly-substance users.

The Current Study

The first aim of this study is to determine patterns of substance use among male and female young adults using Add Health data. The second aim of this study is to explore the extent to which retrospectively reported child supervisory neglect is associated with increasing or

decreasing the odds of membership in each of the resulting classes beyond the effects of parent-reported parental drinking, self-reported depression, adolescent delinquency, and living with a parent.

METHODS

Study Design

We used data from Waves I and III of the Add Health data set,[34] a longitudinal study of a nationally representative sample of adolescents. In 1994, surveys were administered to 90,118 youth in school. From the school sample, an in-home sample stratified by sex and grade of 20,745 youth in grades 7 through 12 (11 to 21 years old) was drawn and interviewed between 1994 and 1995. Between April and August 1996, 14,738 youth were reinterviewed for Wave II. Approximately 6 years later (August 2001 to April 2002), Wave III data were collected from 15,197 18- to 28-years-old who had been interviewed at Wave I. Wave III sampling weights and survey analysis techniques adjusted for the unequal probability of selection, clustered sampling design, and attrition of participants from prior waves.[35]

Study Sample

Table 1 provides sample characteristics. The study sample ($N = 11{,}158$) was restricted to 18- to 24-year-olds with (a) weights, stratification, or cluster variables; and (b) complete data for all measures used in regression analysis ($n = 10{,}618$).

Attrition Analysis

We compared the 4579 attrited cases with the 10,618 cases in the analytic sample. The analytic sample contained more females, was younger, more educated, less depressed, engaged in slightly fewer delinquent behaviors during Wave I, and had fewer parents who drank 5 or more drinks on a single occasion. More attrited cases were black and Hispanic. The analytic sample included more individuals who had been drunk ($P < .001$), drank 5 or more drinks ($P < .001$), used marijuana ($P < .001$), used cocaine ($P < .05$), or used other drugs ($P < .01$).

Measures

Binary measures—The binary measures are presented in Table 2. These items include 10 dichotomous items (*yes* = 1) from Wave III measuring *substance use* during the past 12 months; *race and Hispanic origin* (Black = 1; Hispanic = 1); supervisory neglect (based on Currie and Tekin,[36] we dichotomized the most severe cases of supervisory neglect); *parental drinking* (surveyed parents included biological mothers [86.6%], biological fathers [4.1%], adoptive mothers [2.8%], and grandmothers [1.8%], and "other" parents [adoptive fathers, stepmothers, stepfathers, other relatives, and foster care providers]); *living with parents*; and *relationship status.*

Sex, date of birth, and educational attainment—Respondents provided their sex at Wave I; and dates of birth were used to calculate respondents' ages at Wave III. During Wave III, respondents provided their educational attainment, which ranged from not

completing high school to beyond college. Education and ages were standardized ($M = 0$; $SD = 1$).

Delinquency—During Wave I, respondents were asked how often they had (1) painted graffiti or signs on someone else's property or in a public *place*; (2) *deliberately damaged another person's property*; (3) lied to parents or guardians about where they had been or whom they were with; (4) *took something from a store without paying for it*; (5) *got into a serious physical fight*; (6) hurt someone badly enough to need bandages or care from a doctor or nurse; (7) *ran away from home*; (8) *drove a car without its owner's permission*; (9) *stole something worth more than $50*; (10) *went into a house or building to steal something*; (11) used or threatened to use a weapon to get something from someone; (12) *sold marijuana or other drugs*; (13) *stole something worth less than $50*; (14) took part in a fight where a group of their friends was against another group; and (15) *were loud, rowdy, or unruly in a public place*. The internal consistency of the scale was .84. Items were averaged with a range from 0 = never to 3 = 5 or more times; then scores were standardized ($M = 0$; $SD = 1$).

Depression—During Wave III, the 10-item modified version of the Center for Epidemiologic Studies—Depression (CES-D) scale was administered. The internal consistency of the scale was .80. The summed scores were standardized ($M = 0$; $SD = 1$).

Statistical Analysis

Latent class analysis (LCA) scours a data set to find individuals with similar response patterns to survey questions, then groups together those individuals with similar responses. The resulting mutually exclusive groups are termed *classes*.[37,38] Similar to factor analysis, a limitation of LCA is that the classes formed reflect only the variables included in the model.[39] Using Mplus 7.11, 10 substance use items for each sex were fit with a 1-class model, and classes were increased until model fit for 7 models were examined. The lowest possible values are preferred for the log likelihood, Bayesian information criterion (BIC), and Akaike information criterion (AIC) statistics; and entropy needs to be as close to 1 as possible.[40] Finally, variables were regressed onto the classes using the following 3-step method: (1) Latent classes were formed without including covariates. (2) Using the latent class posterior distribution, the variable S was created to represent the most likely class. (3) The measurement error for S was accounted for while the model was estimated with the auxiliary variables.[41]

RESULTS

Table 3 provides the prevalence for using each substance. The most frequent behavior for females was *being drunk* (67.5%), and for males was *drinking 5 or more drinks on a single occasion* (80.6%). The least frequent behavior for both females and males was *using crystal meth* (4.5% and 7.3%, respectively).

Results of the LCA for each of the 7 classes are provided in Table 4. The 4-class solution was chosen for both sexes. Figure 1 depicts the item-response probabilities for each of the substance-use behaviors for females and males. Classes for both sexes reflect (1) heavy polysubstance users who had the highest probabilities of consuming all substances; (2)

moderate polysubstance users who had high rates of using alcohol, marijuana, and other drugs; (3) alcohol and marijuana users who had high rates of using alcohol and marijuana, but low rates of using other drugs; and (4) low-users who had the lowest rates of using all of the substances.

The results of regressing the covariates onto the classes using the 3-step method are presented as odds ratios (ORs) and 95% confidence intervals (CIs) in Tables 5 and 6. The low-use latent class functioned as the reference. Both male and female heavy polysubstance use class members were more likely to have experienced supervisory neglect than low-use class members. Being single was a risk factor associated with greater odds of membership in each of the substance use classes for both sexes. Being depressed or engaging in adolescent delinquency were risk factors for severe and moderate polysubstance use for both sexes. For females only, adolescent delinquency made membership in the alcohol and marijuana class more likely, whereas living with parents reduced the likelihood of membership in all of the substance use classes. Males who were less educated were more likely to be in the polysubstance use class, whereas females who were more educated were more likely to be in the moderate polysubstance and alcohol and marijuana use classes.

DISCUSSION

This study applied the Social Development Model[13,14] to investigate risk and protective factors associated with patterns of substance use among male and female young adults who were surveyed as part of Add Health, Wave III. As mentioned above, this research presents the first account of how child supervisory neglect influences patterns of substance use among young adults. The results of this study are generalizable to young adults in the United States who are similar to the study sample. Although the contributions of our study are important, our results should be interpreted with caution because longitudinal studies are best suited to determine causal relationships among the variables.

The 4-class model for both men and women consisted of (1) heavy polysubstance use, (2) moderate polysubstance use, (3) alcohol and marijuana use, and (4) a group we termed low-use. This finding was similar to models found in other studies.[7–10] A greater proportion of males were in each of the substance use classes, whereas most females were in the low-use class. This finding, in conjunction with the extant literature,[27,28] suggests that more resources need to be targeted at preventing male substance use prior to young adulthood.

Our finding of a relationship between supervisory neglect and heavy polysubstance use class membership among men and women is a key contribution to the literature. Our study extends the work of Hussey et al.[33] and Shand et al.[32] by more clearly elucidating the degree of risk for drugs ranging from alcohol to more "hard" drugs, such as cocaine or methamphetamine. Our study also focuses on more severe instances of neglect, which may have more enduring effects than the moderate supervisory neglect used by Hussey et al.[33]

Partially consistent with results of prior studies,[20] we found that for females only, parental drinking increased the risk of membership in the moderate polysubstance use class. According to White and Jackson,[20] parental modeling can affect attitudes surrounding use,

situations when use occurs, quantity and frequency of use, and expectations regarding use. A weakness of our measure is that most of the parents who responded to the question regarding parental drinking were mothers and information about fathers' drinking was not adequately captured. Partially consistent with prior studies,[16,17] we found that for women only, living with parents protects against substance use class membership. Female young adults who remain in their parents' homes may be more bonded to parents who function as prosocial role models. Another explanation is that when women remain at home, their parents may monitor their behavior more closely.[20,25] This aspect of the study fills a gap in the literature, which has not previously accounted differences by sex, and indicates that sex-specific interventions may be beneficial.

Our finding that single male and female young adults were at greater risk of membership in each substance use class was consistent with existing studies.[18,19] This finding suggests that bonding to a significant other can also function as a means of social control.

Similar to prior studies,[9,22,23] we found that co-occurring depression increased the likelihood of polysubstance use class membership for both sexes. One issue that still needs to be addressed is the temporal ordering of depression and substance polysubstance use because it is unclear which occurs first. In addition, our measure only assesses depression at one point in time, which does not capture individuals with prior episodes of depression.

Also consistent with the extant literature,[6,24] our finding that adolescent delinquency nearly doubles polysubstance use class membership for both sexes underscores the need to assess for a history of deviant behavior among substance users. Simultaneously, this finding illuminates a potential opportunity for prevention-focused interventions that could anticipate the risk of polysubstance use among youth who engage in several delinquent behaviors.

For both sexes, our finding that black and Hispanic young adults were at much lower risk of heavy polysubstance use and moderate polysubstance use was consistent with prior studies.[29] If longitudinal studies found that this relationship endured, it would be important to explore protective factors within these communities so that interventions can focus on reinforcing them.

The finding that male heavy polysubstance use class members are less educated may indicate that such male young adults struggle to adjust to their autonomy. Conversely, our finding that more educated women were at greater risk of membership in the moderate polysubstance use class and the alcohol and marijuana use class suggests that some young women may use substances to adjust to college life. Further, there may be distinct sex-based experiential differences as young adults navigate the educational process in the context of our societal biases and sex-based privilege.

Implications

This study finds that severe supervisory neglect influences poly-substance use among young adults and has salient implications for research and practice. Although our study has several strengths, it also has some limitations. The cross-sectional nature of this study results in our inability to establish causal relationships between the study variables. Ideally, the substance

use reports should have been validated through drug testing. Future studies should replicate and confirm cross-sectional findings of this study. In addition, longitudinal studies that assess how the relationships found in this study vary over time are needed. Researchers should also investigate how differences based on the duration, frequency, and nature of the supervisory neglect affect substance use. Additionally, qualitative inquiries should incorporate interviews of individuals with co-occurring depression and polysubstance use to better understand what factors contribute to this high-risk behavior. Further research is also needed to identify youth who engage in adolescent delinquency early in order to reduce substance use. Regarding treatment, programs should conduct assessments of a history of depression, delinquency, or both among individuals seeking treatment who report polysubstance use. We hope that future research can extend this study's work to further our understanding of the long-term effects of supervisory neglect, the most prevalent form of maltreatment in the United States as associated with a major public health concern, substance abuse.

Acknowledgments

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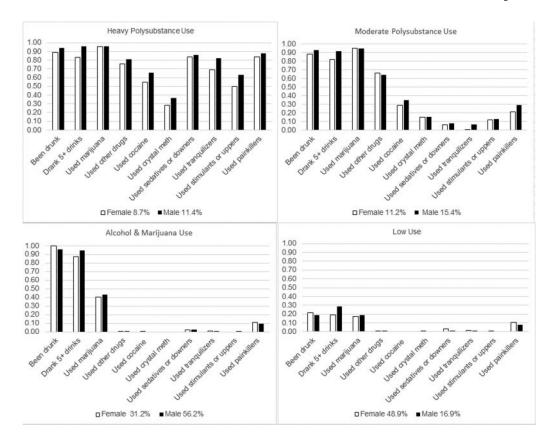
FIGURE 1.
Weighted bar graph of substance use classes. Other drugs include LSD, PCP, ecstasy, mushrooms, inhalants, ice, heroin, or prescription medicines not prescribed to the person who took them.

TABLE 1

Weighted Sample Characteristics

Characteristic	Female	Male	Total
Actual sample size	5,725	4,893	10,618
Weighted sample size	8,953,261.61	7,652,106.39	16,605,368
Percent	49.59	50.41	100.00
	% or Mean (SE)	% or Mean (SE)	% or Mean (SE)
Age	21.47 (0.04)	21.53 (0.05)	21.50 (0.03)
Hispanic			
Yes	10.54	11.54	11.03
Race			
Asian/Pacific Islander	2.59	2.79	2.69
Black	14.45	13.77	14.11
White	72.87	72.49	72.68
Other	10.10	10.96	10.52
Education			
<High school	8.53	12.03	10.26
High school/GED	71.97	73.66	72.81
Some college	6.84	5.62	6.24
College	11.87	8.14	10.02
Beyond college	0.79	0.55	0.67
Relationship status			
Single	63.21	74.20	68.66
Cohabitation	19.31	11.75	15.56
Married	17.47	14.05	15.78
Living situation			
Parents	37.48	45.99	41.70
Another's home	4.81	5.11	4.96
Own place	51.97	43.33	47.68
Group quarters	5.32	4.67	5.00
Other	0.43	0.90	0.66
Severe supervisory neglect [*]	7.59	7.78	7.68
Parental drinking [**]	12.44	14.19	13.31
Mean depression [***]	6.11 (0.09)	4.70 (0.08)	5.41 (0.07)
Mean adolescent delinquency [****]	0.23 (0.01)	0.32 (0.01)	0.28 (0.01)

Note. Frequencies for categorical variables and means and standard errors for continuous variables are provided. Some numbers do not sum to 100 due to rounding.

[*] At Wave III, retroactively reported more than 10 experiences of supervisory neglect before the 6th grade.

[**] At Wave I, parent reported drinking 5 or more drinks on a single occasion.

[***] At Wave III, mean scores of the 10-item modified version of the Center for Epidemiologic Studies–Depression (CES-D) scale.

****
At Wave I, mean score on 15 delinquency items ranging from property offenses to violent offenses.

TABLE 2

Binary Measures

Measures	Wave
Substance use in past 12 months (Yes = 1; No = 0)	III
Been drunk	
Five or more drinks on a single occasion	
Substance use in past 7 years (Yes = 1; No = 0)	III
Marijuana	
Other drugs (i.e., LSD, PCP, ecstasy, mushrooms, inhalants, ice, heroin, or prescription medicines not prescribed for the person taking them)	
Cocaine (i.e., crack, freebase, or powder)	
Crystal meth	
Sedatives or downers (e.g., barbiturates, sleeping pills, or Seconal)	
Tranquilizers (e.g., Librium, Valium, or Xanax)	
Stimulants or uppers (amphetamines, Preludin, or speed)	
Painkillers (e.g., Darvon, Demerol, Percodan, or Tylenol with codeine)	
Race/ethnicity (Yes = 1; No = 0)	I
Hispanicity	
Black	
Supervisory neglect (10 or more times = 1; 9 or fewer times = 0)	III
By the time you started 6th grade, how often had your parents or other adult caregivers left you home alone when an adult should have been with you?	
Parental Drinking (Yes = 1; No = 0)	I
Whether they had consumed 5 or more alcoholic drinks on 1 occasion in the past month	
Live with their parents (Yes = 1; No = 0)	III
Relationship status (Single = 1; Married/cohabitating = 0)	III

TABLE 3

Weighted Prevalence of Wave III Substance Use Behaviors

Substance use behavior	Female %	Male %	Total %
Past 12 months been drunk	67.49	78.94	73.23
Past 12 months drank 5 or more drinks	60.68	80.64	70.69
Past 7 years used marijuana	43.05	53.24	48.10
Past 7 years used other drugs	15.35	21.12	18.24
Past 7 years used cocaine	8.67	14.08	11.38
Past 7 years used crystal meth	4.52	7.25	5.89
Past 7 years used sedatives or downers	10.04	12.74	11.39
Past 7 years used tranquilizers	7.03	11.33	9.19
Past 7 years used stimulants or uppers	5.91	10.03	7.98
Past 7 years used pain killers	18.28	21.73	20.01

TABLE 4

Indicators of Fit With 1 Through 7 Latent Classes by Sex

Indicator	1	2	3	4	5	6	7
LL—Men	−20615.04	−16554.50	−16205.12	**−15684.06**	−15684.06	−15456.00	−15428.64
LL—Women	−21975.82	−18448.69	−17752.97	**−17396.81**	−17259.00	−17191.56	−17144.90
BIC—Men	41315.04	33287.42	32322.09	**31733.42**	31532.09	31464.21	31502.95
BIC—Women	44038.18	37079.08	35782.82	**35165.69**	34985.25	34954.53	34947.40
BIC SSA—Men	41283.27	33220.68	32322.41	**31596.78**	31360.50	31257.67	31261.45
BIC SSA—Women	44006.40	37012.35	35681.14	**35029.04**	34813.65	34738.98	34705.89
AIC—Men	41250.09	33151.01	32114.24	**31454.11**	31181.33	31042.00	31009.29
AIC—Women	43971.65	36939.37	35569.94	**34879.62**	34626.01	34513.11	34441.80
LRT—Men		8035.10	1047.56	**674.91**	291.66	159.62	54.14
P value—Men		0.000	0.000	**0.281**	0.465	0.814	0.631
LRT—Women		6980.93	1377.00	**704.91**	272.75	133.49	92.34
P value—Women		0.000	0.032	**0.071**	0.678	0.779	0.634
Entropy—Men		0.91	0.77	**0.72**	0.74	0.72	0.75
Entropy—Women		0.89	0.69	**0.73**	0.75	0.77	0.77

Note. LL = log likelihood; AIC = Aikaike information criterion; BIC = Bayesian information criterion; BIC SSA = sample-size-adjusted BIC; LRT = Lo-Mendell-Rubin test.

The 4-class models are bold-faced to indicate that these were the models chosen for both men and women.

TABLE 5

Women's Odds Ratios of Covariates Regressed Onto classes: Comparing Substance Use Classes to the Low-Use Class

Variable	Heavy polysubstance use (c1) vs. Low-use (c4)		Moderate polysubstance use (c2) vs. Low-Use (c4)		Alcohol and marijuana use (c3) vs. Low-use (c4)	
	Odds	95% CI	Odds	95% CI	Odds	95% CI
Wave III age	0.81	[0.66, 0.98]	0.89	[0.77, 1.02]	0.90	[0.78, 1.04]
Hispanic	0.25***	[0.14, 0.45]	0.33***	[0.20, 0.54]	0.50**	[0.33, 0.76]
Black	0.03***	[0.01, 0.08]	0.05***	[0.03, 0.10]	0.17*	[0.11, 0.25]
Wave III Education	0.98	[0.80, 1.19]	1.24***	[1.07, 1.43]	1.29***	[1.11, 1.49]
Wave III single	2.20***	[1.48, 3.27]	2.02***	[1.47, 2.77]	2.60***	[1.92, 3.52]
Wave III live with parent(s)	0.59**	[0.40, 0.87]	0.53***	[0.40, 0.72]	0.62**	[0.46, 0.85]
Wave III supervisory neglect	2.43*	[1.41, 4.19]	1.64	[0.96, 2.81]	1.50	[0.88, 2.54]
Wave III parent drank 5 or more drinks	1.01	[0.59, 1.72]	1.60*	[1.03, 2.47]	1.43	[0.93, 2.19]
Wave I delinquency	2.13***	[1.76, 2.58]	2.14***	[1.78, 2.58]	1.43**	[1.14, 1.79]
Wave III depression	1.58***	[1.37, 1.83]	1.32***	[1.15, 1.52]	1.11	[0.94, 1.32]

Note. Low-use is the referent. Hispanic was equal to 1 for individuals who responded they were of Hispanic descent and 0 for those who responded *no.* Thus, the referent group for Hispanics was non-Hispanics. Because of low substance use during emerging adulthood, Black was given a value of 1 and the referent group contained individuals who identified as Asian/Pacific Islander, White, and Other.

*
P < .05

**
P < .01

***
P < .001.

TABLE 6

Men's Odds Ratios of Covariates Regressed Onto classes: Comparing Substance Use Classes to the Low-Use Class

Variable	Heavy polysubstance use (c1) vs. Low-use (c4)		Moderate polysubstance use (c2) vs. Low-use (c4)		Alcohol and marijuana use (c3) vs. Low-use (c4)	
	Odds	95% CI	Odds	95% CI	Odds	95% CI
Wave III age	0.88	[0.74, 1.04]	0.85[*]	[0.73, 0.99]	0.89	[0.76, 1.04]
Hispanic	0.37[***]	[0.21, 0.64]	0.97	[0.60, 1.58]	0.83	[0.52, 1.33]
Black	0.05[***]	[0.02, 0.11]	0.20[***]	[0.11, 0.35]	0.52[*]	[0.33, 0.81]
Wave III Education	0.79[*]	[0.66, 0.96]	0.87	[0.74, 1.02]	0.86	[0.72, 1.03]
Wave III single	2.85[***]	[1.83, 4.46]	1.95[**]	[1.27, 2.97]	2.11[***]	[1.41, 3.17]
Wave III live with parent(s)	0.74	[0.51, 1.09]	0.81	[0.56, 1.17]	0.98	[0.70, 1.37]
Wave III supervisory neglect	2.15[*]	[1.00, 4.61]	2.32[*]	[1.20, 4.48]	0.64	[0.26, 1.57]
Wave III parent drank 5 or more drinks	1.49	[0.80, 2.75]	1.39	[0.75, 2.58]	1.43	[0.74, 2.76]
Wave I delinquency	2.25[***]	[1.60, 3.17]	2.00[***]	[1.41, 2.82]	1.35	[0.91, 2.00]
Wave III depression	1.36[**]	[1.12, 1.65]	1.24[*]	[1.03, 1.50]	1.11	[0.89, 1.39]

Note. Low-use is the referent. Hispanic was equal to 1 for individuals who responded *yes* to a question asking if they were of Hispanic descent and 0 for those who responded *no*. Thus, the referent group for Hispanics was non-Hispanics. Because of their low substance use during emerging adulthood, Black was given a value of 1 and the referent group contained individuals who identified as Asian/Pacific Islander, White, and Other.

[*]
$P < .05$

[**]
$P < .01$

[***]
$P < .001$.