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Substance Use among Youth with Currently and Formerly Incarcerated Parents

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Abstract

Parental incarceration impacts millions of children in the U.S. and has important consequences for youths' adjustment. Children of incarcerated parents are at risk for a host of negative psychosocial outcomes, including substance abuse problems. Using data from a statewide survey of youth behavior, the effect of both present and past parental incarceration on youths' report of their substance use behaviors was examined. Both present and past parental incarceration was significantly associated with use of alcohol, tobacco, marijuana, and prescription drugs, as well as substance abuse and dependence. Implications for practice and research are discussed.

Keywords

parental incarceration; substance use; substance abuse

Mass incarceration, and its implications for children and families, is a growing concern for professionals across disciplines, including social work (Miller, 2006). According to the Bureau of Justice Statistics (BJS), there were more than 1.5 million people incarcerated in state and federal prisons in 2014 (Carson, 2015). In 2007, the last year for which BJS data are available, nearly 810,000 parents of 1.75 million children were incarcerated (Maruschak, Glaze, & Mumola, 2010). More recent data from the National Survey of Children's Health indicate that 7%, or 5 million children, have a history of parental incarceration (Murphey & Cooper, 2015).

Incarcerated parents report considerable socioeconomic and environmental risks (Glaze & Maruschak, 2008). There are profound disparities in incarceration rates by race (Carson, 2015), and as a result, there are a disproportionate number of children of color with incarcerated parents. Children living in poverty, those whose parents have limited education,

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and children living in rural areas are also more likely to experience parental incarceration than their peers (Murphey & Cooper, 2015).

Substance Abuse among Incarcerated Parents

The increase in the rate of parental incarceration over the last three decades (Glaze & Maruschak, 2008) is due in large part to increases in arrests and more severe penalties for drug-related offenses (Zhang, Maxwell, & Vaughn, 2009). In 2007, nearly 60% of incarcerated parents were serving time for drug-related offenses. Further, two out of three parents in state prisons met criteria for substance dependence or abuse, over half (54%) reported using drugs in the month before their arrest, and more than a third (34%) reported that during their childhoods, their parents or guardians had abused alcohol or drugs (Glaze & Maruschak, 2008). Youth who are exposed to parental substance abuse are more likely to abuse substances themselves (Clark, Cornelius, Kirisci, & Tarter, 2005), particularly when exposure occurs during the adolescent years (Biederman, Faraone, Monuteaux, & Feighner, 2000). The experience of risks such as these place youth with incarcerated parents at particularly high risk for intergenerational cycles of substance use and abuse, and involvement with the criminal justice system.

Parental Incarceration and Youth Outcomes

As an adverse childhood experience (ACE; Felitti et al., 1998), parental incarceration has consequences for children's social, emotional, behavioral, and physical health (Poehlmann & Eddy, 2010). Previous research has examined the potential consequences of parental incarceration for the next generation, including increased risk for antisocial behavior, mental health problems, and substance use (Huebner & Gustafson, 2007; Murray & Farrington, 2008; Murray, Janson, & Farrington, 2007). For example, Dallaire and Aaron (2010) found that children who had a parent who was incarcerated in the past two years had higher levels of delinquency and were more likely to report experiencing family conflict and violence in their families than children who had experienced parental incarceration in the more distant past. Adolescents with incarcerated parents might also receive less monitoring from their caregivers, which can increase the likelihood that adolescents will engage in antisocial behavior such as aggression and substance use, particularly when they are spending time with peers who are engaging in such behaviors (Hanlon et al., 2005).

Studies have demonstrated links between parental incarceration and the substance use of youth. Murray and Farrington (2005) found that boys who were separated from a parent before age ten because of incarceration were more likely to exhibit antisocial behaviors (including drug use, and heavy drinking, among other indicators) in adolescence and adulthood compared to boys who experienced other types of childhood separations from parents. These findings remained significant even after controlling for parental criminality and other family risks. Likewise, Kinner, Alati, Najman, and Williams (2007) found that paternal imprisonment was associated with maternal reports of increased alcohol use among youth at age 14. However, these associations became non-significant when a variety of family characteristics were controlled (e.g., socio-economic status, maternal mental health, maternal substance use).

Adolescence as a Sensitive Period

Adolescence may be a particularly sensitive period for the onset of behavior problems and substance use (Chassin, Sher, Hussong, & Curran, 2013). Adolescence is a time when the brain is still developing and risk-taking is normative (Casey & Jones, 2010), including some experimentation with substance use. However, substance use that begins in the adolescent period is associated with higher rates of dependence, disruptive behaviors, and major depression in adulthood (Clark, Kirisci, & Tarter, 1998). Early initiation of substances and frequent substance use may make adolescents more likely to become involved in the juvenile justice system and subsequently the adult criminal justice system, contributing to an intergenerational cycle of incarceration (Wakefield & Uggen, 2010). Studies have placed estimates of substance use disorders in juvenile justice populations as high as 62% (Aarons, Brown, Hough, Garland, & Wood, 2001). For example, in a sample of young people in a juvenile detention center in Cook County, IL, Teplin and colleagues (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002) found that half of males and nearly half of females had a substance use disorder. Furthermore, substance use predicts recidivism in adolescent populations, even after controlling for sociodemographic variables and prior delinquency (Stoolmiller & Blechman, 2005). In fact, onset of a substance use disorder by the age 16 is associated with a fourfold greater risk of incarceration for substance-related offenses in adulthood, as compared to those with no disorder (Slade et al., 2008).

Combined, the high rates of substance abuse among incarcerated parents (Glaze & Maruschak, 2008), previous research linking parental incarceration with adverse outcomes in the next generation, and the developmental salience of substance use in adolescence, make substance use among youth with incarcerated parents an important area for scientific inquiry. As such, this study examines substance use in youth with currently and formerly incarcerated parents, as compared to children with no history of parental incarceration.

Research Questions

Based on previous research, we expect that children of currently incarcerated parents will exhibit higher rates of substance use than those with formerly incarcerated parents, and that both groups will report more substance use than children with no experience of parental incarceration, after controlling for demographic characteristics and household substance abuse.

Method

Data Source

Data for this study were drawn from the 2013 Minnesota Student Survey (MSS; Minnesota Department of Education, 2015). The MSS is administered every three years to all fifth, eighth, ninth, and eleventh grade students in Minnesota. It includes self-reported data from young people on use of alcohol, tobacco, and other drugs. Student participation is voluntary and all surveys are completely anonymous; no identifying information is collected. School districts are required to follow federal laws regarding parental notification, as required by the Family Educational Rights and Privacy Act and the Protection of Pupil Rights Amendment.

In 2013, 84% of public school districts, and 71% of eighth graders, 69% of ninth graders, and 62% of eleventh graders participated (Minnesota Department of Education, 2015). In 2013, the most recent year for which data are available, the survey was completed by 42,841 students in eighth grade, 42,381 students in ninth grade and 36,958 in eleventh grade ($N = 122,180$). For the first time in 2013, youth were asked to report whether they have a parent or guardian who has even been in jail or prison.

Participants

Participants in this study were 122,180 children in public schools in the state of Minnesota who provided data on the 2013 MSS survey. On average, youth were 14.87 years old ($SD = 1.34$, $Range = 12$ to 19 years), and half of the youth in the sample (50.2%, $n = 61,341$) were boys. Reflecting the demographics of the state of Minnesota as a whole, most of the youth in the sample (72.9%) identified as non-Hispanic White.

Measures

Dependent variables—Dependent variables in this study included: early alcohol initiation, recent alcohol use, binge drinking, tobacco use, lifetime marijuana use, recreational use of prescription drugs, substance abuse or dependence, and treatment for drug or alcohol problems.

Early alcohol initiation: Students in ninth and eleventh grades only were asked “How old were you when you had your first drink of an alcoholic beverage such as beer, wine, wine coolers, and liquor, other than a few sips?” Response choices ranged from 10 to 17 years, or “I have never had a drink of alcohol other than a few sips.” Children who reported drinking at 12 years or younger were coded “1”; all other students were coded “0.” Full text of the survey items is available from the authors upon request.

Recent alcohol use: Students were asked “During the last 30 days, on how many days did you drink one or more drinks of an alcoholic beverage?” There were seven response choices, ranging from zero to 30 days. Students who endorsed any use of alcohol in the 30 day period were coded “1”; students who endorsed zero days were coded “0.”

Binge drinking: Binge drinking was measured by combining two items: the number of drinking occasions in the last 12 months and average alcohol consumption on those occasions. Students were asked “If you drink beer/wine/wine coolers/liquor, generally how much (if any) do you drink at one time?” Response options ranged from 1 to 5 drinks, or “I don’t drink beer/wine/wine coolers/liquor.” Students were also asked “During the last 12 months, on how many occasions (if any) have you had alcoholic beverages to drink?” Response options ranged from 0 to 40 or more. Students who endorsed drinking an average of 5 or more drinks on 10 or more occasions in the past year were coded “1”; otherwise they were coded “0.”

Tobacco use: Frequent use of tobacco was measured with three items. Students were asked the following three questions: “During the last 30 days, on how many days did you smoke a cigarette?” “During the last 30 days, on how many days did you smoke cigars, cigarillos, or

little cigars?” and “During the last 30 days, on how many days did you use chewing tobacco, snuff, or dip?” For all three questions, response options ranged from zero to 30 days. Students who endorsed use of any type of tobacco on 20 or more days were coded “1”; otherwise they were coded “0.”

Lifetime marijuana use: Students in ninth and eleventh grades were asked “How old were you when you tried marijuana (pot, weed) or hashish (hash, hash oil) for the first time?” Answers ranged from 10 to 17 years or “I have never used tried marijuana or hashish.” Students who endorsed any use of marijuana, regardless of the age of use, were coded “1”; otherwise they were coded “0.”

Recreational use of prescription drugs: Students were asked “During the last 30 days, on how many days did you use prescription drugs not prescribed for you?” Response choices ranged from zero to 30 days. Students who endorsed using prescription drugs on one or more days were coded “1”; otherwise they were coded “0.”

Substance abuse or dependence: The MSS includes 13 questions that represent the Diagnostic and Statistical Manual of Mental Disorders – 4th Edition (DSM-4; First, 1994) criteria for a substance use disorder. Students who endorsed no use in the past 12 months were coded “not applicable” ($n = 76,667$) and excluded from this analysis.

Five items measure the four DSM-4 criteria for substance abuse (1) “During the last 12 months, how many times have you missed work or school, or neglected other major responsibilities because of alcohol or drug use?”; (2) “During the last 12 months, how many times have you driven a motor vehicle while using alcohol or drugs?”; (3) During the last 12 months, how many times has alcohol or drug use caused you problems with the law?”; and (4A) During the last 12 months, have you continued to use alcohol or drugs even though you knew it was hurting your relationships with friends or family?” or (4B) “During the last 12 months, how many times have you hit someone or become violent after using alcohol or drugs?” For items 1, 2, 3, and 4B response options ranged from zero to three times. For item 4A, response options were “Yes” or “No.” Any student who reported a positive response on at least one criterion was coded “1” otherwise they were coded as “0.”

Seven items measured the seven DSM-4 criteria for substance dependence: (1) “During the last 12 months have you found that you had to use a lot more alcohol or drugs than before to get the same effect?”; (2) “During the last 12 months, how many times have you used more alcohol or drugs than you intended to?”; (3) “During the last 12 months, have you tried to cut down on your use of alcohol or drugs but couldn’t?”; (4) “During the last 12 months, how many times have you spent all or most of the day using alcohol or drugs, or getting over their effects?”; (5) “During the last 12 months, how many times have you given up important social or recreational activities like sports or being with friends or relatives to use alcohol or drugs or to get over their effects?”; and (6A) “During the last 12 months, how many times has alcohol or drug use left you feeling depressed, agitated, paranoid, or unable to concentrate?” or (6B) “During the last 12 months, how many times have you used so much alcohol or other drugs that the next day you could not remember what you had said or done?” For items 1 and 4, response options were “Yes” or “No.” For all other items,

response options ranged from zero to three times. Any student who reported a positive response on at least three of those criteria was coded “1,” otherwise they were coded as “0.” The substance abuse and dependence scales were combined into a single outcome variable; students who met either the abuse or dependence criteria were coded “1”, otherwise they were coded “0.”

Treatment for drug or alcohol problems: Students were asked “Have you ever been treated for an alcohol or drug problem? (Mark ALL that apply).” Response options were “No,” “Less, during the last year” or “Yes, more than a year ago.” Students who endorsed receiving treatment for a drug or alcohol use problem at any time were coded “1”; otherwise they were coded “0.” Treatment for alcohol or drug problems is relevant only to those students who reported using substances; therefore, students who endorsed no use of any substance in the past 12 months were coded “not applicable” ($n = 76,667$) and excluded from this analysis.

Independent variables—Independent variables were current or former experience of parental incarceration, gender, age, poverty, race and ethnicity, urbanicity, and exposure to household substance abuse.

Parental incarceration: Parental incarceration was assessed with one item “Have any of your parents or guardians ever been in jail or prison? (Mark ALL that apply).” Answer choices were “None of my parents or guardians has ever been in jail or prison,” “Yes, I have a parent or guardian in jail or prison right now,” and “Yes, I have a parent or guardian in jail or prison in the past.” Most respondents (77.5%) indicated no experience of parental incarceration, 13% indicated that a parent was incarcerated in the past, and 1.8% indicated that a parent was currently incarcerated; 7.7% were missing. There were a small number of children ($n = 579$; 0.47%) who reported they had both a currently and formerly incarcerated parent; these children were included in the currently incarcerated parent category. Thus, parental incarceration was a three-level variable coded “0” = “No experience of parental incarceration,” “1” = “Formerly incarcerated parent,” and “2” = “Currently incarcerated parent.”

Gender: Gender was assessed with one item. Students were asked to report their gender, with response options of “Male” or “Female.” Males were coded “0”, females were coded “1”.

Age: Age was assessed with one item. Students were asked “How old are you?” Response options ranged from 11 years to 21 years or older. No students reported being 11 years or younger, nor 21 years or older. Thus, age ranged from 12 to 19 years.

Poverty: On the basis of previous research with these dataset (Gower, McMorris, & Eisenberg, 2015), poverty status was assessed with three items: “Do you currently get free or reduced-price lunch at school?” “During the last 30 days, have you had to skip meals because your family did not have enough money to buy food?” and “During the past 12 months, have you stayed in a shelter, somewhere not intended as a place to live, or someone

else's home because you had no other place to stay?" Respondents who endorsed any one of these items were coded "1", otherwise they were coded "0."

Race and ethnicity: Race and ethnicity were measured with six items. Students were asked whether they identify with any of the following racial or ethnic groups: Hispanic or Latino/a; American Indian or Alaskan Native; Asian; Black, African, or African American; Native Hawaiian or Other Pacific Islander; White. We would like to be able to examine racial and ethnic groups separately, given potential differential outcomes. However, because most students reported they were non-Hispanic White, sample sizes for the other races and ethnicities were relatively small. Further, although our overall sample is large, it includes just 2,202 children with a currently incarcerated parent. Logistic regression requires that no cells contain sparse data, which becomes increasingly untenable as the number of covariates increases. Given these considerations, race and ethnicity were treated dichotomously. Students were coded "0" if they endorsed only "White," otherwise they were coded "1."

Urbanicity: Students in schools located in the seven country major metropolitan area were coded "0"; students in schools outside the metropolitan area were coded "1."

Exposure to household substance abuse: Adult household substance abuse was measured with two items: "Do you live with anyone who drinks too much alcohol?" and "Do you live with anyone who uses illegal drugs or abuses prescription drugs?" Response options for both items were "Yes" or "No." Students who reported "Yes" for either question were coded "1"; students who responded "No" to both items were coded "0." A greater proportion of youth with currently (59%) and formerly (47%) incarcerated parents reported living with someone who abuses substances than youth with no experience of parental incarceration (33%).

Data Analysis

Analyses were conducted in SPSS v. 23. Logistic regression models were used to examine differences in substance use by parental incarceration status, while controlling for gender, age, poverty, race/ethnicity, urbanicity, and exposure to household substance use. Separate models were run for each measure of substance use.

Missing Data

Overall, the level of missing data was small, ranging from complete data for gender, to 7.7% for parental incarceration. However, the sample sizes were different among the outcomes examined. Two of the outcomes -- age of initiation of alcohol use and marijuana use -- were asked only of the 9th and 11th grade students. Some outcomes, such as substance abuse or dependence, or treatment for drug or alcohol problems are relevant only for those youth who reported using substances. Sample sizes for all outcomes are reported in Table 1.

Results

More than 16% of the youths surveyed endorsed use of alcohol in the past 30 days. Early alcohol initiation (use at age 12 or earlier) was endorsed by 37.7% of students in ninth and eleventh grade, and binge drinking was reported by 2.4% of all youth in the sample. More

than 23% of youth in ninth and eleventh grade endorsed prior use of marijuana, and just over 5% of all students endorsed misuse of prescription drugs. Of the students who reported any use of drugs or alcohol ($n = 45,513$, or 37.3% of all students), 35.3% met the DSM criteria for substance abuse or dependence disorder; however, fewer than 6% of youth who reported substance use had received treatment. About 3% of youth reported being regular users of tobacco products. Across all the outcomes, adolescents with currently and formerly incarcerated parents exhibited higher rates of problems than children with no history of parental incarceration. Descriptive statistics by incarceration group can be found in Table 1.

Logistic regression analyses, controlling for demographic characteristics and household substance use, supported the hypothesis that children of currently and formerly incarcerated parents were more likely to use and abuse alcohol, tobacco, and other drugs than children with no experience of parental incarceration. For seven of the eight outcomes, children of currently incarcerated parents exhibited the highest risk, followed by children of formerly incarcerated parents. Adjusted odds ratios are presented in Table 2.

Compared to children with no experience of parental incarceration, adolescents with formerly incarcerated parents were one and a half times as likely to report trying alcohol at age 12 or younger. They were about twice as likely to report prescription drug use, binge drinking, and recent alcohol consumption. Youth with a formerly incarcerated parent were more than twice as likely to report using tobacco and marijuana, and were 1.5 times as likely to meet DSM criteria for substance abuse or dependence.

When compared to children with no history of parental incarceration, children of currently incarcerated parents were more likely to report using alcohol before the age of 12. They were more than twice as likely to report recent alcohol use and binge drinking, four times as likely to report use of marijuana or prescription drugs, and more than five times as likely to report using tobacco products. They were 2.4 times as likely to meet DSM criteria for substance abuse or dependence, and 3.9 times as likely to have received treatment for drug or alcohol abuse.

Discussion

Results of this study demonstrated that youth with both currently and formerly incarcerated parents were more likely to report substance use and abuse compared to youth who have never experienced the incarceration of a parent. Additionally, youth with currently incarcerated parents fared worse than their peers with a history of parental incarceration on nearly every indicator. The higher rates of substance use and abuse among youth with incarcerated parents has important implications for youth well-being within multiple domains of functioning and across the lifespan. Longitudinal research shows that early alcohol and drug use predicts failure to complete high school, even after controlling for other risk factors (McCluskey, Krohn, Lizotte, & Rodriguez, 2002). High rates of substance use and abuse may be one mechanism by which social inequality is systematically transmitted across generations, including in families with incarcerated parents (Wakefield & Uggen, 2010).

There are at least four possible mechanisms by which parental incarceration may be linked to adolescents' substance use. The first mechanism, which parallels the work of Turney and Haskins (2014) on academic outcomes among young children with incarcerated parents, suggests that a child's separation from her parent as a result of the parent's incarceration may be a traumatic experience. Arditti (2012) documented symptoms of posttraumatic stress in children with incarcerated mothers, including depression, trouble sleeping, and concentration problems. Among adolescents with limited social support and poor coping skills, distress resulting from trauma could lead to alcohol and drug use as a coping behavior (Travis, McBride, & Solomon, 2005).

A second possible mechanism emphasizes strain to the family system as a result of the parent's incarceration, through the loss of income, disruption in parenting roles, housing mobility, and conflict in the co-parenting relationship (Foster & Hagan, 2009). This strain may compromise children's adjustment, and consequently increase their risk for antisocial behavior, including substance use and abuse (Agnew, 1992).

A third potential mechanism involves genetic risk. Incarcerated parents may have poor impulse control (Meldrum, Young, & Lehmann, 2015) and many have a history of addiction, which may have ultimately contributed to their incarcerations (Glaze & Maruschak, 2008). As such, many adolescents with incarcerated parents may be genetically predisposed to substance use disorders.

A fourth mechanism concerns adolescents' environmental exposures. Rates of substance use and abuse are higher in inmate populations than in the general public. Children with incarcerated parents may be more likely to have lived in a household where someone abused drugs or alcohol, as was indeed the case in our sample. Exposure to a parent's substance abuse is a potent risk factor for children's substance abuse (Biederman et al., 2000). It is possible that parental drug and alcohol abuse, which is related to parental incarceration, is the underlying causal mechanism rather than incarceration itself.

These mechanisms for the transmission of risk are likely overlapping and interconnected. Although the cross-sectional nature of the data limit our ability to draw casual inferences or empirically test these mechanisms, the results point to valuable areas for future inquiry and existing large-scale datasets (e.g., National Longitudinal Study of Adolescent Health; Harris et al., 2009) may prove useful for examining them.

Implications for Social Work Practice

These findings point professionals to potential areas for prevention and intervention, including the adaptation of evidence-based programs to meet specific needs of youth affected by a parent's incarceration. An example of a promising approach for youth substance use is the cognitive-behavioral Families Facing the Future (FFF; formerly known as Focus on Families) program (University of Washington Social Development Research Group, n.d.). FFF was developed for parents receiving methadone treatment and their children. The program aims to: (a) reduce parents' use of illegal drugs; and (b) to reduce their children's risk factors for future drug use, while also promoting protective factors (e.g., family communication). Research has demonstrated initial positive effects on both parent

and youth outcomes, including increased relapse prevention skills and increased self-efficacy skills, which were linked to reductions in substance use and family conflict (Catalano, Gainey, Fleming, Haggerty, & Johnson, 1999). At two-year follow-up, children in FFF reported less substance use and fewer behavior problems (Bry, Catalano, Kumpfer, Lochman, & Szapocznik, 1998). Although FFF offers a promising approach, to the best of our knowledge, the feasibility of administering FFF with currently incarcerated parents has not yet been established, and outcomes with this population are yet unknown.

Limitations

The current study has several limitations. First, the study relied exclusively on youths' self-reports of their substance use, abuse, and treatment. Prior research has found self-reports of substance use to have good reliability (Johnson & Mott, 2001) and moderate validity (Williams & Nowatzki, 2005). Combining youths' self-reports with parent report, peer report, and/or juvenile court records would strengthen future studies. A second limitation relates to potential selection effects. Although all school districts in the state were invited and encouraged to participate, two large public school districts in urban areas opted out. Given the concentration of social disadvantage and crime in urban areas (Bobo, 2009; Rodriguez, 2013), we suspect that results presented here likely underrepresent the true number of youth who have experienced a parent's incarceration. Similarly, the Minnesota Student Survey only surveys youth currently attending school. Substance abuse may contribute to academic difficulties and school failure and/or lead to placements outside of school (e.g., in patient treatment programs); thus, some students with substance use problems may have not been in school and thus not included in this sample. Furthermore, youth who drop out of school may be disproportionately affected by parental incarceration. Issues such as these may have impacted our estimates on the relation between parental incarceration on youths' substance use and abuse.

Finally, the 2013 Minnesota Student Survey included only a single item about the incarceration of a parent or guardian. No information was collected about which parent or guardian was incarcerated, the circumstances of the incarceration, or the timing, frequency or duration of the parent's incarceration. Effects may vary depending on factors such as these as and their interactions with the child's developmental capacities (Shlafer & Poehlmann, 2010). The youth's caregiver(s) before, during, and after the parent's incarceration, disruptions in the home environment due to the incarceration, and the incarcerated parent's role upon release are examples of important factors to assess in future research.

Conclusions

Despite these limitations, this study provides important information about the use of alcohol, tobacco, and other drugs among youth with currently and formerly incarcerated parents compared to those who have not had these experiences. Results from this study indicate that parental incarceration is a potentially potent risk factor for adolescents' substance use and abuse. Given the long-term consequences of early substance use, and especially early frequent and heavy use, this study has important implications for professionals working with youth with an incarcerated parent.

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Table 1

Descriptive Statistics by Incarceration Status

		<u>Full Sample</u>		<u>0 = None</u>	<u>1 = Former</u>	<u>2 = Current</u>
	<i>N</i>	<i>Mean (SD)/%</i>	<i>Mean (SD)/%</i>	<i>Mean (SD)/%</i>	<i>Mean (SD)/%</i>	<i>Mean (SD)/%</i>
Age (years)	121,919	14.9 (1.34)	14.9 (1.34)	14.9 (1.34)	14.8 (1.31)	14.8 (1.29)
Gender (1 = Female)	122,180	49.8	49.8	50.3	53.7	48.2
Poverty (1 = At least 1 risk)	121,954	30.9	30.9	23.7	59.7	74.8
Race/ethnicity (1 = Not White)	120,715	26.3	26.3	21.6	38.6	54.6
Urbanicity (1 = Non-metro area)	122,180	46.9	46.9	46.9	55.5	50.1
Household substance abuse (1 = Yes)	113,452	13.5	13.5	9.7	32.3	38.1
Early alcohol initiation (1 = Yes)	72,285	37.7	37.7	35.7	48.5	46.7
Recent alcohol use (1 = Yes)	112,521	16.8	16.8	14.3	28.4	36.7
Binge drinking (1 = Yes)	111,168	2.4	2.4	1.9	4.4	6.3
Frequent tobacco use (1 = Yes)	113,349	3.1	3.1	2.1	7.1	14.6
Lifetime marijuana use (1 = Yes)	72,439	23.7	23.7	19.5	44.3	58.1
Use of prescription drugs (1 = Yes)	111,344	5.3	5.3	3.9	11.5	21.7
Abuse or dependence (1 = Yes)	27,941	37.5	37.5	33.4	46.7	58.9
Drug or alcohol treatment (1 = Yes)	42,903	5.7	5.7	3.9	9.9	22.4

Table 2

Adjusted Odds Ratios from Logistic Regression Models

	B	SEB	OR (95% CI)
Early alcohol initiation			
Incarceration (ref = None)			
Formerly	0.41 ***	0.03	1.51 (1.44 – 1.58)
Currently	0.32 ***	0.06	1.38 (1.22 – 1.55)
Recent alcohol use			
Incarceration (ref = None)			
Formerly	0.62 ***	0.02	1.86 (1.78 – 1.95)
Currently	1.00 ***	0.05	2.73 (2.47 – 3.01)
Binge drinking			
Incarceration (ref = None)			
Formerly	0.66 ***	0.05	1.93 (1.74 – 2.14)
Currently	1.04 ***	0.10	2.82 (2.30 – 3.46)
Tobacco use			
Incarceration (ref = None)			
Formerly	0.88 ***	0.04	2.41 (2.21 – 2.63)
Currently	1.67 ***	0.08	5.33 (4.60 – 6.18)
Marijuana use			
Incarceration (ref = None)			
Formerly	0.93 ***	0.03	2.54 (2.41 – 2.70)
Currently	1.40 ***	0.06	4.06 (3.59 – 4.59)
Prescription drug abuse			
Incarceration (ref = None)			
Formerly	0.72 ***	0.04	2.05 (1.91 – 2.19)
Currently	1.39 ***	0.06	4.03 (3.57 – 4.55)
Abuse or dependence on drugs or alcohol			
Incarceration (ref = None)			
Formerly	0.43 ***	0.03	1.53 (1.44 – 1.63)
Currently	0.86 ***	0.07	2.37 (2.06 – 2.73)
Treatment for drug or alcohol abuse			
Incarceration (ref = None)			
Formerly	0.59 ***	0.05	1.81 (1.63 – 2.01)
Currently	1.26 ***	0.08	3.90 (3.33 – 4.56)

Note: Statistics reported in this table have been adjusted for: adolescent age, gender, race/ethnicity, exposure to poverty, urbanicity, and household substance use.

 $p < .001$.