Published in final edited form as:

J Child Adolesc Subst Abuse. 2016 ; 25(5): 487–495. doi:10.1080/1067828X.2015.1103346.

The Availability of Substances in Adolescence: Influences in Emerging Adulthood

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Abstract

This study examines how the availability of substances in the home during adolescence and its influence on substance use in young adulthood. Data are drawn from the National Longitudinal Study of Adolescent Health (ADD Health). The final sample consisted of approximately 15,000 cases from waves 1, 3 and 4. Multivariate analyses indicate that the availability of substances in the home affects young adult substance use and substance use in later young adulthood. We also find that the availability of substances in the home during adolescence is associated with an earlier age at first substance use. This study offers further evidence for understanding how the home environment affects substance use behavior among young adults. In this case, exposure to substances in adolescence, and their easy availability increases the likelihood of substance use in adolescence, and increases use in young adulthood.

Keywords

substance abuse; adolescence; young adulthood; home environment

It has been well established that parents and the home environment are critical in understanding patterns of substance use among adolescents and young adults (Hoffman & Cerbone, 2002; Kopak, Chia-Chen, Haas, & Rogers-Gillmore, 2012; Obot, Wagner, & Anthony, 2001; Warner, White, & Johnson, 2007). There is research on parenting factors, which shows that parenting behaviors and practices are of great significance in explaining alcohol and drug use among adolescents (Broman, Li, & Reckase, 2008; Conger, Conger & Scaramella, 1997; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Gutman, Eccles, Peck, & Malanchuk, 2011; Hoeve, Dubas, Gerris, & Van der Laan, 2011). The specific aspects of parenting behaviors and practices that relate to child outcomes are the adolescent's perception of parental warmth and acceptance, parental rules for behavior, autonomy-granting and parental monitoring (Conger et. al, 1997; Farmer, Sinha & Gill, 2008; Griffin, et. al, 2000). Research has found that this kind of parenting, characterized by responsiveness to children's needs, but also demanding that children control their behavior (authoritative parenting) (Baumrind, 1991), is related to greater psychosocial competence, school success, and less involvement in problem behaviors, in general, and less drug use, in particular.

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Parents and the home environment are of importance in adolescent and young adult use also because of patterns of socialization around substance use. What children learn about substances and their appropriate use is important (Braitman, Kelley, Ladage, Schroeder, Gumieny & Morrow, 2009; Miller & Plant, 2010). Children learn about what substances are appropriate to use, when they might be used, and what the potential dangers of substance use might be. Often times this occurs without explicit parental discussion and children simply model parent's behavior regarding the use of substances. Two indicators of this pattern of modeling are parental use of substances and the availability of substances in the home. There have been many studies of parental alcohol and drug use. They find that parental alcohol and drug use is strongly related to drug use among youth and young adults (Broman et al, 2008; Brook, Richter, & Whiteman, 2000; Brook, Brook, Gordon, Whiteman, & Cohen, 1990; Brook, Whiteman, Cohen, & Shapiro, 1995; Chassin, Pitts, DeLucia, & Todd, 1999; Caldwell, Rafferty, Reischle, De Loney, & Brooks, 2010; Conger et. al, 1997; Hops, Duncan, Duncan, & Stoolmiller, 1996; ; Farmer et al, 2008; Gfroerer, 1987; Griffin, et. al, 2000; Hartman, Lessem, Hopfer, Crowley, & Stallings, 2006; Horton & Gil, 2008; Ohannessian & Hesselbrook, 2007; Ohannessian, Hesselbrook, Kramer, Bucholz, Schickit, Kuperman, & Nurnberger, 2004; Rangarajan, 2008). Those who are socialized by parents who drink and use other drugs are more likely to initiate use at younger ages and have more problematic outcomes (Brook, et. al, 2000; Brook, et. al, 1995; Thornberry, Krohn, & Freeman-Gallant, 2006). Studies linking family patterns of alcoholism and drinking behaviors in adolescents and young adults also exist. It is generally well established that the prevalence of substance use disorders is higher among those youth who have a family history of the disorder (Brook et. al., 1990; Lieb, Merikanagas, Hofler, Pfister, Isensee, & Wittchen, 2002). Family history of alcohol abuse is associated with early onset alcoholism, and there is evidence that individuals raised in alcoholic families are more likely to initiate earlier substance use. This places them at risk for greater substance-related problems (Dawson, 2000). There is limited research on how the availability of substances in the home may influence patterns of use among offspring, and almost no research on how this may influence patterns in young adulthood. One study examined the children exposed to substances (Grant, 2000), but the influence on use was not examined. One study found that the exposure to paternal alcoholism did not predict offspring alcohol use disorder (Duncan, Scherrer, Fu, Bucholz, Heath, & True, 2006), but the relationship to simple use was not assessed. We argue that availability of substances in the home may be of great importance in understanding use among offspring. Of course, when parents use substances that means that such substances are usually available in the home. This may be one reason for the link between parental substance use and offspring use. The availability of substances in the home may mean relatively easy access to substances for children and adolescents. Therefore, the availability of substances in the home could increase substance use among children and adolescents, since they can easily obtain the substance.

In this paper, we investigate how the perceived availability of substances in the home may influence children's initial substance use in adolescence and in later life. Though there have been studies of children's exposure to alcohol use (as an example, see Grant, 2000), we still lack studies of how exposure to substances may influence patterns of young adult substance use. The current study examines the significance of the availability of substances in the

home, its link to the first substance use and offspring substance use patterns. This research may help us to understand more about substance use over the life course.

In the analysis below, we control for the variables age, sex, race-ethnicity, and parental substance use. Age is a significant factor in substance use. Older adolescents are more likely to use substances (Broman et al, 2008; SAMHSA, 2013), as are males (SAMHSA, 2013). Studies consistently find differences in the lifetime and current prevalence of substance use among adolescents of different racial and ethnic groups (SAMHSA, 2013; Wallace et al, 1995; Bachman et al, 1991; Beals, Spicer, Mitchell, Novins, & Manson, 2003; Broman et al, 2008; Cataeno & Clark, 1998; Harrell & Broman, 2009; Lipsky & Caetano, 2009; Vaeth, Caetano, Ramisetty-Mikler, & Rodriguez, 2009). For example, Asian-American adolescents have very low rates of substance abuse over the lifetime and in the past year (SAMHSA, 2013). Native American adolescents have the highest rates of use for marijuana and other illicit substances (SAMHSA, 2013). White adolescents have the highest rates alcohol use overall, though Native American adolescents have the highest rates of heavy alcohol use, and of binge alcohol use (SAMHSA, 2013). And as noted earlier, parental substance use is an important correlate of offspring substance use (Broman et al, 2008; Conger et. al, 1997; Farmer et al, 2008; Griffin, et. al, 2000), so we control for it as well. We now turn to a discussion of the data and methods used.

Methods

Data

The data used are from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative study of adolescents in grades 7 through 12 in the United States (Bearman, Jones, Udry, 1997). A multistage, stratified, school-based, cluster sampling design was used to first collect data in schools. Approximately 120,000 adolescents were eligible for a school interview, and more than 90,000 adolescents completed the in-school questionnaire. From among those eligible for the school interview, a portion of the students were selected for in-home interviews. Wave I data were collected in 1994–1995 (see Bearman et al., 1997; Blum, Beuhring, Shew, Bearinger, Sieving, & Resnick, 2000). Wave III data were collected in 2001–2002, and wave IV data were collected in 2007–2008. The current study uses the full dataset, from waves 1, 3 and 4. Wave 2 data are excluded as they did not interview high school seniors. Analysis to determine whether attrition is a significant factor in the results showed that in only one case there is a significant difference in the distributional patterns of relationships. Those who were users of illegal drugs other than marijuana at wave one were significantly more likely to be lost at waves three and four follow-up. We exclude missing values on our dependent variables.

Measures

Demographic measures of age, sex and race were self-reported by respondents. Sex was a dummy coded variable with male = 1. Race was dummy coded for racial and ethnic groups including non-Hispanic (nhp) white, non-Hispanic black, Hispanic, non-Hispanic Asian-American and non-Hispanic racial-ethnic others, with white non-Hispanic as the reference group. Racial and ethnic respondents not White, Black, Hispanic or Asian-American were

combined into the ‘other’ category because of their relatively small numbers in the data. Age, sex, and race are coded from wave one, when respondents were adolescents. Because we want to examine factors that predate young adult substance use, we use age at wave one in all analyses. Using measures of age at the later waves (age at wave three and age at wave 4), did not substantially alter the results reported here.

Parental substance use (coded from wave one) is measured using two indicators. From interviews with parents, almost always the mother, questions were asked about the frequency of alcohol use, and the frequency of heavy alcohol use. The frequency question asked ‘how often do you drink alcohol?’ We coded the measure 0 to 4 where 0 = never, and 4 = three or more days a week. The heavy drinking question asked ‘how often in the last month have you had five or more drinks on one occasion?’ This measure is coded from 0 to 2, where 0 = never, and 2 = two or more times in the last month.

Availability of alcohol in the home (coded from wave one) is measured from the respondent using a question that asked ‘is alcohol easily available to you in your home?’ The measure is dummy coded in the original data where 1 = yes (easily available) and 0 = no. Availability of illegal drugs in the home is similarly measured. The measure is dummy coded in the original data where 1 = yes (easily available) and 0 = no.

Age at first substance use is measured from the respondent using a question that asked ‘How old were you when you took your first drink (used marijuana/ other illegal drugs)?’ The respondent gave her/or his age beginning at age 5. Ages were recoded into a measure that ranges from 1 to 18, where 1 = 5 to 8 years of age; 2 = 9 to 11 years of age; 3 = 12 to 13 years of age; 4 = 14 years of age; 5 = 15 years of age; 6 = 16 years of age; 7 = 17 years of age; 8 = 18 years of age; 9 = 19 years of age; 10 = 20 years of age; 11 = 21 years of age; 12 = 22 years of age; 13 = 23 years of age; 14 = 24 years of age; 15 = 25 years of age; 16 = 26 years of age; 17 = 27 years of age; and 18 = 28 years of age or older. Respondents were asked about this in wave four, and data were obtained only from respondents who reported use of the substance.

Substance use as a dependent variable is used from both waves three (average age of respondents is 22) and four (average age of respondents is 29). We use four indicators from each wave: alcohol use, marijuana use, other illegal drug use, and prescription drug use. We first describe the measures from wave three. Alcohol use in wave three is measured based on questions which asked about both the quantity and frequency of alcohol use. The measure was coded into an assessment of the quantity and frequency of use on a five-point scale ranging from “never” (0), to (4), which roughly corresponds to drinking at least 2–3 times a month, and drinking at least more than 10 drinks each time. The alcohol use measures are coded based on measures used in prior studies (Duncan, Duncan & Hops, 1998). Marijuana use in wave three is based on a frequency measure, and is coded from 0 to 1, where 0 = no use in the past year, and 1 = any use of marijuana in the past year. Use of other illegal drugs, other than marijuana, is measured from questions which asked about the use of illegal substances such as meth, cocaine and others in the past year. We recoded the measures into one indicator that ranges from 0 to 1, where 0 = never, and 1 = any use of illegal drugs other than marijuana. Prescription drug misuse is measured in wave three from questions asking

‘Since adolescence, have you taken any of the following drugs without a doctor’s permission?’ The substances asked about were sedatives, tranquilizers, stimulants, pain killers and steroids. Any yes response was coded ‘1’, and the responses were summed, and a dummy variable created that ranges from 0 to 1, where 1 = at least one of the prescription drugs was abused since adolescence.

Substance use measures in wave four are as follows. In wave 4, the alcohol use measure is coded similarly as is the wave three measure; based on questions which asked about both the quantity and frequency of alcohol use. The measure was coded into an assessment of the quantity and frequency of use on a five-point scale ranging from “never” (0), to 3, where 3 roughly corresponds to drinking at least once a week and drinking at least four drinks each time. Marijuana use in wave four is based on a question which asked about the number of days that the respondent used marijuana in the past year. The measure is coded from 0 to 1, where 0 = no use in the past year, and 1 = any use of marijuana in the past year. Use of other illegal drugs, other than marijuana, is measured from questions which asked about the use of illegal substances such as meth, cocaine and others in the past year. We recoded the measures into one indicator that ranges from 0 to 1, where 0 = never, and 1 = any use of illegal drugs other than marijuana. Prescription drug misuse is measured in wave four from a question asking if the respondent has ever used a prescription drug that ‘was not prescribed for you, in larger amounts than prescribed, or in another manner not prescribed by your doctor?’ The question was a yes-no answer, and is dummy coded 1 = yes, misused prescription drugs and 0 = no, did not misuse prescription drugs.

Descriptive data is provided below in table 1, for all measures.

Statistical Methods

We estimate multiple regression models for the dependent variables of alcohol use, and logistic regression models for the other three dependent variables of marijuana use, illegal drug use and prescription drug use, as these three measures are categorical. Odds ratios are presented from these analyses. Cluster and weight variables are used to account for non-independence of observations and unequal probability of selection. The complex survey design is also taken into account through use of cluster and weight variables. When used, the data accurately represents the U.S. population of adolescents at wave one.

Results

Descriptive data are shown in Table 1. The sample averaged about 16 years old at wave one, 22 years at wave three, and about 29 years old at wave four. The distribution of gender is approximately fifty-fifty, (by original study design). The majority of the sample is white, non-Hispanic, at 51 percent, while 21 percent of the sample is black, non-Hispanic, 17 percent Hispanic, and 7 percent Asian. Three percent of the sample is from ‘other’ racial groups. Very few parents (again, mostly the mother) were frequent drinkers or heavy alcohol users, but there was a small group (not shown) of both frequent drinkers or heavy alcohol users (about 4 percent drink at least three times a week; and 6 percent drank heavily at least twice in the last month). About 29 percent of adolescents reported in wave one that alcohol was easily available to them, while 3 percent reported in wave one that illegal drugs were

easily available to them. Age at first drink and age of first use of marijuana roughly corresponds to age between 16 and 17 years old. Age at use of other illegal drugs corresponds to age of between 19 and 20 years old.

Data are presented for substance use at waves three and four. Means for alcohol use in young adulthood is consistent with moderate drinking one to two times weekly. About 31 percent used marijuana in the past year at wave three, in young adulthood, and 12 percent used other illegal drugs in the past year at wave three, in young adulthood. About 25 percent of the respondents indicate use of at least of the five prescription substances that should be used only with a doctor's permission since adolescence at wave three, in young adulthood. By wave four, in later young adulthood, the levels of substance use have declined from what they were in wave three. The average use of alcohol is slightly lower than in wave three, marijuana use is much lower, at 22 percent, and the proportion of later twenties adults who report ever misusing prescription drugs is 16 percent. A comparison of this mean for wave four prescription drug use indicates that respondents are either untruthful in reporting their use of prescription drugs at wave four, or more likely, asking specifically about 'prescription drugs' seems to have elicited a lower rate of reported use among these respondents at wave four.

Multivariate Analysis

Table 2 presents results of a logistic regression of substance availability in adolescence on predictors. Both the availability measures and the predictors are assessed at time one (adolescence) in this table. For both alcohol and illegal drug availability in adolescence, age is of significance. Older adolescents report more availability than do younger adolescents. Males report that illegal drugs are easily available, as compared to females. Race-ethnicity is of importance for alcohol availability. Blacks report that alcohol is not as available in the home as do whites (the reference group). On the other hand, Asians report that alcohol is more available to them than do white adolescents, while other race ethnic adolescents report that illegal drugs are more easily available to them than do white adolescents. Parental use of alcohol is important in both the availability of alcohol and of illegal drugs. In both cases, adolescents whose parents use alcohol and/or drink heavily report that both alcohol and illegal drugs are easily available in the home to them.

Table 3 presents results of an OLS regression of age at first substance use on predictors. Recall that age at first substance use was ascertained from respondents at wave four, while all predictor variables are measured at wave one. In all cases of the first use of substances, age at wave one is associated with age at first use. Gender is also associated with first use. Men begin substance use at earlier ages than do women. Race-ethnicity is also significant. All racial and ethnic groups report older age at first use of alcohol than whites, with the exception of the other race respondents (this is not statistically different from the white non-Hispanic coefficient). First use of marijuana occurs at older ages for blacks and Asians, when compared to whites, but at a younger age for the other-race respondents compared to whites. For the first use of illegal drugs, blacks use at older ages than do whites, while effects for the other race-ethnic groups is not statistically significant from that of whites. Parental use of alcohol is somewhat important. Alcohol use by parents is associated with a

lower age at first use of alcohol by offspring, while heavy drinking by parents is associated with a lower age at first use of marijuana by offspring. The easy availability of alcohol is associated with a lower age at first use of alcohol, but with a higher age at first use of marijuana. It is not statistically significant for first use of other illegal drugs. However, the availability of illegal drugs in the home in adolescence is critical in the age at first use for all substances. In each case of first use of alcohol, marijuana and other illegal drugs, the availability of illegal drugs in the home in adolescence is associated with a younger age at first use of substances.

Table 4 presents results of a logistic regression of substance use at wave three, young adulthood (average age of 22 years), on various predictors and availability of substances in adolescence. The availability measures are assessed at time one, while the substances use variables, the dependent variables, are from young adulthood (at wave three) in this table. First we see that age, sex, race-ethnicity, availability of substances and parent's alcohol use while the respondent was an adolescent are all of significance in the prediction of substance use in young adulthood. Recall that all of the predictor variables are measured at wave one, adolescence. Results for age reveal that as young adults age, they use substances less. Men use substances more than do women. For race-ethnicity, we see that white non-Hispanics are significantly more likely to use substances than people of all other race-ethnic groups, except for members of 'other' race-ethnic groups. Greater quantity-frequency of parental drinking is associated with greater substance use in young adulthood. Heavy alcohol use by parents is statistically significant in one case; that is for the use of alcohol. Most importantly, the results in the table reveal that the availability of substances in the home in adolescence is predictive of young adult substance use. This is true in all cases except for illegal drug availability for alcohol use. In all other cases, availability of alcohol and illegal drugs in the home in adolescence predicts greater substance use in young adulthood.

Table 5 presents results of a logistic regression of substance use at wave four, later young adulthood (average age of 29 years), on various predictors and availability of substances in adolescence. As in table 4, the availability measures are assessed at time one, while the substances use variables, the dependent variables, are from later (average age of 29 years) young adulthood in this table. Again, as in table 4, recall that all of the predictor variables are measured at wave one, adolescence. Many results are very similar to those for earlier young adulthood, as were presented in table 4. Again, age, sex, race-ethnicity, availability of substances and parent's alcohol use while the respondent was an adolescent are all of significance in the prediction of substance use in later young adulthood in wave four. Results for age reveal that as young adults age, they use substances less. Men use substances more than do women. For race-ethnicity, again we see that white non-Hispanics are significantly more likely to use substances than people of all other race-ethnic groups, except for members of 'other' race-ethnic groups. Race-ethnic differences for marijuana use for black non-Hispanics and Asians are now insignificant in later young adulthood. As in earlier young adulthood, in wave three, greater quantity-frequency of parental drinking is associated with greater substance use in young adulthood. However, heavy alcohol use by parents is not statistically significant. Results in the table reveal that the availability of substances in the home in adolescence is predictive of young adult substance use, but the effects are not as true for all substance use as was true in earlier young adulthood. By wave four, the easy

availability of alcohol in the home during adolescence is predictive of alcohol use and prescription drug use in later young adulthood. There are no effects for marijuana and other illegal drug use. However the availability of illegal drugs in the home during adolescence is now more strongly predictive of substances use, besides alcohol, in later young adulthood. The odds ratios for illegal drug availability are now much higher in predicting use in later young adulthood than was the case for earlier young adulthood, in wave three. As in table 4, this is true in all cases except for illegal drug availability for alcohol use.

Discussion

In this paper, we have shown the significance of one important growing up experience in young adult substance use – the exposure to and availability of substances in the household. Our specific findings are that the easy availability of alcohol and illegal drugs in the home during adolescence is 1) generally associated with an earlier age of first use of alcohol and illegal drugs; and 2) generally predictive of substance use in young adulthood (average age of 22 years) and in later young adulthood (average age of 29 years). Adolescents who reported that illegal drugs were easily available to them in the home reported themselves as younger at first use of alcohol, marijuana and other illegal drugs. Adolescents who reported that alcohol was easily available to them in the home reported themselves as younger at the age of first use of alcohol. However adolescents with the easy availability of alcohol in the home reported themselves as older at first use of marijuana. This is an interesting finding that requires more research.

There was a strong association between the availability of substances in the home and substance use. Adolescents who reported that alcohol and illegal drugs were easily available to them in the household reported more substance use in two periods of young adulthood. Effects are generally stronger for illegal drug availability than for alcohol availability. In both early and later young adulthood, odds of marijuana, other illegal drugs and prescription drug misuse are greater when illegal drugs were available in the home during adolescence, than for when alcohol was easily available. However, both alcohol and illegal drug availability are associated with use.

We also found significant demographic differences in the availability of alcohol and illegal drugs in the home during adolescence. Age is important, in that older adolescents were more likely to report that substances were available to them. That older adolescents indicate more substance availability may mean that parents have more substances in the home when children are older, but it could also mean that older children are better at finding the substances in the home. A research effort specifically focused on this process may lead to more definite conclusions about what this finding truly means.

Race-ethnicity is significant, in that white adolescents are more likely than black adolescents to have alcohol available in the home, but are less likely than Hispanic and Asian adolescents to have alcohol available in the home. This pattern is interesting given that there are consistent findings from earlier research which suggest less actual substance use in adolescence for most racial-ethnic minority adolescents than among white adolescents (Broman et al, 2008; Cataeno & Clark, 1998; SAMHSA, 2013). Yet we do not necessarily

see that reflected in the data on availability, as Hispanic and Asian adolescents report more substance availability in the home than white adolescents. We see in later tables (4 and 5) that whites are more likely users of substances in the two periods of young adulthood. There is one race-ethnic difference in the availability of illegal drugs; other race ethnic adolescents are more likely than whites to report illegal drugs are easily available to them in the household. There are also sex differences. Males report that substances are more available to them in the household than do females, and they are both more likely to be younger at first substance use, and to actually use them more than females. Perhaps not surprisingly, parental drinking increased the odds of alcohol availability. But we also saw an increase in the odds of illegal drug availability as drinking levels of parents increase. However, we found only one instance of an effect of parental heavy drinking on substance availability in the home. This may be a function of the fact that so few parents in these data drink heavily. It might be that a more targeted sample of heavy drinkers might show these availability effects. These data may be understood to indicate that the significant fact regarding the availability of substances in the home is whether parents use alcohol at all, and that heavy drinking is not as important. Prior research has clearly shown that parental alcohol and drug use is strongly predictive of substance use among youth and young adults (Brook, Richter, & Whiteman, 2000; Chassin, Pitts, DeLucia, & Todd, 1999; Caldwell et al., 2010; Gfroerer, 1987; Hops, Duncan, Duncan, & Stoolmiller, 1996; Horton & Gil, 2008; Ohannessian et al., 2004; Ohannessian & Hesselbrock, 2007; Thornberry, Krohn, & Freeman-Gallant, 2006). We also find evidence of this pattern in tables 4 and 5. In the two periods of young adulthood, parental drinking is associated with greater substance use among these young adults.

These data provide evidence that the availability of substances in the home while growing up may be a critical factor in the later use of substances. One limitation of our study is that while we have shown this pattern, it remains for future research to identify the specific processes about why this pattern exists. There are at least two possibilities that we suggest be investigated. The first is that the easy availability of substances in the home might be associated with otherwise inadequate parenting. It could be that there is insufficient monitoring of children's activities. It could also be that parents who are substance users are generally lacking in parenting skills, as is suggested by some research. A second possibility is concerns the possible genetic link between substance use and parents and offspring. Perhaps the easy availability is evidence of genetic propensity for use for both parents and offspring. Thus parents are substance users and exposure to such portends use by offspring. Of course, these possibilities are not mutually exclusive.

Another limitation of this study is that two simple questions concerning substance availability are asked, and no further details are available. This is certainly a limitation of the question about illegal drug availability. It is would better to know what particular illegal drug was available. There may be different effects of different substances. Ideally a series of questions would be asked to ascertain what the substance was, whether it was continuously available, and etc. This is something we would suggest for future research on this topic.

A further limitation is that we were unable to control for other potential confounds such as a family history of addiction. It could be relevant that in a family of substance addicts, the

easy availability of substances is a taken-for-granted circumstance. We also did not examine sibling use and its possible influence on the availability and use of substances. This is a task for future research. We should also note the possibility of recall bias when respondents were asked about age of first use. There may be telescoping and/or simple forgetting of the accurate information.

In closing, these data provide evidence that the availability of substances in the home while growing up is a critical factor in the later use of substances. This finding has implications for families and teens concerning substance use. One is that the exposure and availability needs to be lessened in order to decrease the likelihood that offspring will use substances in later young adulthood. This might a simple way to lower the many negative consequences of substance use in young adulthood.

Acknowledgments

This research uses data from Add Health, a program project designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris, and funded by a grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 17 other agencies. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Persons interested in obtaining Data Files from Add Health should contact Add Health, The University of North Carolina at Chapel Hill, Carolina Population Center, 206 W. Franklin Street, Chapel Hill, NC 27516-2524 (addhealth_contracts@unc.edu). No direct support was received from grant P01-HD31921 for this analysis.

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Table 1

Descriptive data for the sample

	Mean	Range
Age (Wave 1)	16.1	12 – 21
Age (Wave 3)	22.4	18 – 28
Age (Wave 4)	29.1	25 – 34
Sex (1 = male)	.49	0–1
White-non-Hispanic	.51	0–1
Black-non-Hispanic	.21	0–1
Hispanic	.17	0–1
Asian-American	.07	0–1
Other race	.03	0–1
Parent drinking frequency (Wave 1)	.94	0–4
Parent heavy drinker (Wave 1)	.19	0–2
Alcohol availability (Wave 1)	.29	0–1
Illegal drug availability (Wave 1)	.03	0–1
Age at first drink (Wave 4)	6.70	1–18
Age at Marijuana use (Wave 4)	6.82	1–18
Age at use of illegal drugs (Wave 4)	9.98	1–18
Alcohol use (Wave 3)	1.89	0–4
Marijuana use (Wave 3)	.31	0–1
Use of other illegal drugs (Wave 3)	.12	0–1
Prescription drug use (Wave 3)	.25	0–1
Alcohol use (Wave 4)	1.78	0–3
Marijuana use (Wave 4)	.22	0–1
Use of other illegal drugs (Wave 4)	.10	0–1
Prescription drug use (Wave 4)	.16	0–1

See pages 6–8 for a full description of variable coding.

Table 2

Logistic Regression of Availability on Predictors

	Alcohol Easily Available	Illegal Drugs Easily Available
Age W1	1.04 ***	1.10 ***
Sex W1	.94	1.19 *
Black _non-Hispanic	.67 ***	1.00
Hispanic	1.01 *	.87
Asian	1.57 ***	1.06
Other race	1.07	1.52 *
Parent Drinks	1.70 ***	1.15 ***
Parent Drinks Heavy	.89 ***	1.18 *
Constant	.13	.01
X ²	1315.00 ***	51.85 ***
	N= 17,350	N=17,359

See pages 6–8 for a full description of variable coding.

Odds ratios are reported.

*
p < .05

**
p < .01

p < .001

Table 3

OLS Regression of Age at First Use on Predictors

	First Drink	First Marijuana Use	First Illegal Drugs Use
Age W1	.09 ***	.22 ***	.36 ***
Sex W1	-.57 ***	-.53 ***	-.34 ***
Black _non-Hispanic	1.19 ***	.38 ***	1.67 ***
Hispanic	.44 ***	-.13	-.28
Asian	.98 ***	.74 ***	.45
Other race	-.21	-.46 *	-.27
Parent Drinks	-.23 ***	-.05	.04
Parent Drinks Heavily	-.11	-.40 ***	-.15
Alcohol easily available	-.20 ***	.21 ***	.03
Illegal Drugs Easily available	-1.19 ***	-1.29 ***	-1.04 ***
Constant	5.58	3.16	4.30
R ²	.07	.04	.05
	N= 10,561	N=7,188	N=4,180

See pages 6–8 for a full description of variable coding.

Unstandardized coefficients are reported.

*
p < .05

**
p < .01

p < .001

Table 4

Regression of Wave 3 Substance Use on Predictors

Wave 3:	Alcohol	Marijuana	Other Drug	Rx Drug Abuse
Age W1	-.00	.89 ***	.89 ***	.95 ***
Sex W1	.26 ***	1.64 ***	1.70 ***	1.27 ***
Black_non-Hispanic	-.72 ***	.66 ***	.22 ***	.59 ***
Hispanic	-.26 ***	.75 ***	.81 ***	.79 ***
Asian	-.29 ***	.67 ***	.74 **	.83 *
Other race	-.13 *	.93	.86	1.06
Parent drinks	.10 ***	1.19 ***	1.17 ***	1.06 *
Parent drinks heavily	-.05 *	1.00	.98	1.07
Alcohol easily available	.18 ***	1.27 ***	1.26 ***	1.11 *
Illegal Drugs easily available	.01	1.57 ***	1.95 ***	1.33 **
Constant	.10	.39	.66	.67
X ²	-----	601.85	550.89	195.71
	N= 12,633	N= 12,913	N=12,923	N= 12,658

OLS regression conducted for alcohol use in column one. $R^2 = .09$.

Logistic regression conducted for columns 2–4; Odds ratios are reported.

See pages 6–8 for a full description of variable coding.

*
p < .05

**
p < .01

p < .001

Table 5

Regression of Wave 4 Substance Use on Predictors

Wave 4:	Alcohol	Marijuana	Other Drug	Rx Drug Abuse
Age W1	-.04 ***	.90 ***	.90 ***	.91 ***
Sex W1	.31 ***	1.89 ***	1.75 ***	1.49 ***
Black_non-Hispanic	-.47 ***	1.00	.39 ***	.28 ***
Hispanic	-.24 ***	.81 **	.81 **	.47 ***
Asian	-.16 ***	.89	.79	.57 ***
Other race	-.14 **	1.17	.91	.93
Parent drinks	.10 ***	1.29 ***	1.16 ***	1.12 ***
Parent drinks heavily	-.03	1.00	1.05	1.01
Alcohol easily available	.12 ***	1.06	1.11	1.18 ***
Illegal Drugs Easily available	.00	2.18 ***	2.23 ***	1.78 ***
Constant	2.35	.92	.40	.88
X ²	-----	504.80	352.31	621.76
	N= 13,220	N= 13,372	N= 13,385	N= 13,319

OLS regression conducted for alcohol use in column one. $R^2 = .08$.

Logistic regression conducted for columns 2–4; Odds ratios are reported.

See pages 6–8 for a full description of variable coding.

*
p < .05

**
p < .01

p < .001