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# Neighborhood Characteristics and the Initiation of Marijuana Use and Binge Drinking

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## Abstract

**BACKGROUND—**This study examines whether residential neighborhood characteristics influence the initiation of marijuana use and binge drinking, and if these neighborhood factors heighten or dampen peer influences on substance use.

**METHODS—**Predictors of marijuana ($N$ = 6,516) and binge drinking ($N$ = 6,630) initiation over a one-year period were identified using data from the National Longitudinal Study of Adolescent Health. Participants were ages 12–19 years at baseline. The main predictor variables were neighborhood characteristics, using both objective (proportion of households below the poverty line and female-headed, unemployment rate, residential stability) and subjective (perceived cohesion and safety) measures. Binge drinking was defined as 5 or more drinks in a row.

**RESULTS—**Initiation occurred for 12.9% of adolescents in the case of marijuana and 16.4% for binge drinking. Marijuana initiation was more likely among adolescents who lived in neighborhoods with a higher unemployment rate, and binge drinking initiation was more likely among those who perceived greater safety in their neighborhood, after adjusting for other neighborhood characteristics, demographics, friend characteristics, and behavioral and family risk factors. There was no evidence that neighborhood context moderates the associations of peer factors on initiation.

**CONCLUSIONS—**Select neighborhood characteristics appear relevant to the initiation of marijuana use and binge drinking, although the mechanisms appear to be distinct for each substance. If these results are found to be robust, future research will help better understand how neighborhood context influences the initiation of adolescent substance use in order to inform prevention efforts.

### Keywords

Adolescent; neighborhood; peer; marijuana; binge drinking



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**Contributors** Drs. Tucker and Pollard were primarily responsible for the design of the study. Dr. Pollard conducted the data analysis and Dr. Tucker wrote the first draft of the manuscript. Drs. De la Haye, Kennedy and Green assisted with the design of the study and provided feedback on drafts of the manuscript.

**Conflict of Interest** All authors declare that they have no conflicts of interest.

# 1. INTRODUCTION

## 1.1. The potential influence of neighborhoods on adolescent substance use

Alcohol and drug use are largely recognized as being influenced by multiple social contexts and processes during adolescence, including neighborhoods, family and peers. However, research has focused more heavily on family and peer influences than more distal contextual influences such as neighborhoods. Greater attention to neighborhood context is warranted given that adolescence is a time of increasing independence from family and more time spent in new and broader environments. Much of the research on neighborhoods is informed by social disorganization theory (Shaw and McKay, 1942), which posits that neighborhood features such as low socioeconomic status and residential instability influence individual behavior through their impact on neighborhood-level social processes such as increased exposure to deviant individuals and activities, environmentally-induced stress, and fewer forms of social control and monitoring.

Studies assess neighborhood context using either objective or subjective measures, although rarely examining both types simultaneously. Objective neighborhood measures are most often based on aggregations of individual data (e.g., socioeconomic status) within a geographic area (e.g., census tract) derived from census data. The few studies examining their associations with adolescent drinking or marijuana use have yielded mixed results. A study of 114 $9^{th}$–$10^{th}$ grade students in the northeastern U.S., for example, reported no association between neighborhood disadvantage and a composite measure of adolescent substance use (e.g., Allison et al., 1999). However, a study in Ontario, Canada found greater adolescent alcohol and drug use in areas with the lowest SES characteristics (Smart et al., 1994) and another of over 4,000 students in Chicago found a positive association between area deprivation and alcohol use among African American students (but not Hispanics; Tobler et al., 2011). A recent study examining the growth of neighborhood disorder found that young adults residing in deteriorating neighborhoods in Baltimore were 30% more likely to use marijuana two years after high school compared to those living in always-good neighborhoods (Furr-Holden et al., 2011). Still other work has yielded results contrary to what might be expected from social disorganization theory. In a sample of 2,006 at-risk high school students in Seattle, those residing in more disadvantaged neighborhoods reported *lower* rates of alcohol and marijuana use (Snedker et al., 2009).

Studies using subjective neighborhood measures, which are based on residents' perceptions of their neighborhood such as disorder, cohesion and safety, have tended to yield more consistent associations between adolescents' reports of their neighborhood and their involvement in alcohol or drug use. In one of the few studies to specifically examine initiation, 95 $6^{th}$ graders from a school in the Midwest were more likely to initiate substance use by $8^{th}$ grade if they had witnessed neighborhood events such as drinking on the streets, robbery, drug use, arrests, and fighting (Burlew et al., 2009; see similar cross-sectional findings by Wilson et al., 2005, Winstanley et al., 2008). Other studies of middle school students (Choi et al., 2006) and young adults (Theall et al., 2009) have found greater substance use among youth who report feeling less safe and more fearful in their neighborhoods.

Although the existing literature suggests that neighborhood context may in some way be influential in adolescent alcohol and marijuana use, it has often been based on studies using cross-sectional designs, composite substance use measures (sometimes aggregated with other risk behaviors), and small regional samples. In particular, there is a lack of information on whether subjective and objective neighborhood characteristics play a role in the initiation of marijuana use and binge drinking during adolescence.

### 1.2. The Role of Peers

Based on social disorganization theory and its focus on neighborhood-level social processes, one might expect that the negative impact of a disorganized neighborhood on substance use may be accounted for, to some extent, by exposure to deviant or substance using peers in these neighborhoods. Longitudinal studies have provided some support for this idea, with peer characteristics found to mediate associations of neighborhood disadvantage with adolescent substance use using both subjective (Brook et al., 1989) and objective (Chuang et al., 2005) neighborhood measures. Less studied is whether the neighborhood context may serve as an accelerating or de-accelerating agent, as some have suggested (Snedker et al., 2009), that allows peer factors to have a greater impact in some contexts than in others. To our knowledge, studies have not examined whether neighborhood disadvantage moderates the risk of marijuana and binge drinking initiation that is associated with exposure to deviant peers.

### 1.3. The Present Study

This study examines whether census-based indicators of neighborhood disorganization, as well as adolescent's subjective assessments of their neighborhood, predict their initiation of marijuana use and binge drinking over a one-year period. In general, we hypothesized that the initiation of both types of substance use would be more likely among adolescents residing in neighborhoods that: (a) were more economically disadvantaged (e.g., higher unemployment rate, more female-headed households, more households with incomes below the poverty line); (b) had greater residential instability; (c) were perceived to be less cohesive in terms of neighbors looking out for one another; and (d) and were perceived to be unsafe. This study also explores the role of peers in the initiation of marijuana use and binge drinking, particularly whether residing in a neighborhood with these characteristics might amplify the well-established risk of substance use that is associated with adolescents' exposure to deviant peers.

Our analytic approach addresses a concern that has been raised with regards to analyses of neighborhood-level effects on risk behavior (Haynie et al., 2006): associations may be due to compositional differences among individuals rather than neighborhood characteristics, especially when neighborhood variables (e.g., disadvantage) are constructed based on aggregations of individual traits (e.g., household socioeconomic status). Selection into neighborhoods is a particular concern as well; for example, more conscientious parents (an unmeasured trait) may tend to choose to reside in neighborhoods that are less disordered (and thus observed neighborhood effects would reflect the decision making of conscientious parents rather than a true neighborhood effect). We use the approach adopted by Haynie et al. (2006) to examine whether associations of neighborhood characteristics with substance use initiation change after adjusting for composition and selection variables.

## 2. METHODS

### 2.1 Data

Analyses are based on data from Waves I-II of the National Longitudinal Study of Adolescent Health, a nationally representative study of adolescents in grades 7–12 in the U.S. in 1995 who have been followed with multiple interview waves. The sampling frame included all high schools in the U.S. Over 90,000 participants from 145 schools were given a basic in-school interview. Data from this in-school interview were used to generate a baseline sample of 20,745 adolescents aged 12–19 to complete in-home interviews between April-December 1995 (Wave I) and April-August 1996 (Wave II). In addition, 17,670 parents of Add Health respondents were interviewed at Wave I. 14,738 Add Health respondents were re-interviewed at Wave II (87.6% response rate among eligible Wave I

respondents; adolescents in grade 12 at Wave I were not interviewed at Wave II by design). See Harris et al. (2009) for more details on the Add Health design and longitudinal data.

Adolescents were excluded from the analyses due to: a) missing the in-school, Wave II in-home, or parent interview (excluding $n$=11,348 of the Wave I in-home sample); b) reporting any (or missing) lifetime use of marijuana or any (or missing) lifetime binge drinking at Wave I, or missing network measures of substance use (excluding $n$=2,763 for marijuana and 2,611 for binge drinking); c) missing information on use of the substance at Wave II (excluding $n$=24 for marijuana and 60 for binge drinking); or (d) missing information on perceived safety, selected neighborhood, race/ethnicity, closeness to mother, or availability of drugs or alcohol in the home (excluding $n$=94 for marijuana and 96 for binge drinking; all other predictor variables were mean imputed). This resulted in a final analytic sample of $N$=6,516 for the marijuana analyses and N=6,630 for the binge drinking analyses, with a 76% overlap in these two samples. Table 1 provides unweighted descriptive statistics for the study variables.

## 2.2 Key measures

**2.2.1 Marijuana use and binge drinking—**Adolescents were asked how many times in their life they used marijuana, and how many days in the past 12 months they drank five or more drinks in a row (information on lifetime binge drinking is not available). They were considered to have not initiated marijuana if they reported never trying it, and to have not initiated binge drinking if they reported no days in the past 12 months. At Wave II, we derived dichotomous measures of any past year marijuana use and binge drinking to determine whether initiation had occurred since Wave I. This was the only Wave II information used.

**2.2.2 Residential neighborhood characteristics—**Objective neighborhood characteristics were assessed using 1990 U.S. Census data: proportion with income below the poverty line; proportion of family households that are female-headed with children under 18 years old; the unemployment rate; and the proportion of individuals aged 5 or older who lived in a different household 5 years earlier (an indicator of residential instability). These characteristics were assessed at the block group level. Two subjective neighborhood characteristics were based on adolescent report: neighborhood cohesion (People in this neighborhood look out for each other; 0=*false*, 1=*true*); and perceived safety (Do you usually feel safe in your neighborhood; 0=*no*, 1=*yes*). Following Haynie et al. (2006), we addressed possible selection effects by controlling for the most important reason provided by parents for living in their neighborhood (out of 10 options, this variable is coded as 1 if it is due to better schools, to be near family/friends, or because of low crime in the neighborhood and coded as 0 for all other reasons). An indicator of whether respondents changed neighborhoods between waves is included to control for the reduction in exposure to the Wave I neighborhood factors among those who moved.

**2.2.3 Friend characteristics—**Information on the proportion of school friends who were marijuana users and binge drinkers comes from the in-school survey. All respondents were asked to nominate up to five male and five female friends. Nominated friends who belong to Add Health schools are linked to their own in-home survey responses to assess each friend's self-reported substance use. The proportions of a respondent's friends that reported any marijuana use in the past 30 days and any binge drinking in the past year were used to calculate the proportion of total number of nominated school friends engaging in that behavior (note that information on past year friend marijuana use is not available). Additionally, we examined two friend variables that might be expected to increase the likelihood of initiation. Whether the parent perceived the adolescent's best friend to be a

good influence (0=*no*, 1=*yes*) was included to capture friend deviancy beyond their substance use behavior. Whether the adolescent only had outside-of-school friends (0=*no*, 1=*yes*, based on the in-school survey which identified whether nominated friends did not go to the adolescent's school) was included given its association with other forms of problem behavior (Haynie and Payne, 2006).

**2.2.4 Model covariates: Personal demographics and behavioral and family risk factors—**Demographics included gender, age, race/ethnicity, parent-reported household income, mother's education (1=*8th grade or less* to 7=professional training beyond a 4-year college or university), and whether the adolescent lives with both parents (0=*no*, 1=*yes*). Behavioral risk factors are assessed with five variables. Initial binge drinking during the past year (0=*no*, 1=*yes*) is included in the model predicting to marijuana initiation, and initial marijuana use during the past 30 days (0=*no*, 1=*yes*) is included in the model predicting binge drinking initiation. Trouble at school is measured as the sum of four items asking how often they have trouble getting along with peers, paying attention, getting homework done, and getting along with other students (0=*never*, 4=*everyday*; α=.86). Delinquency is assessed using 14 items from the Add Health delinquency scale (one item on drug selling was excluded), which asks how often the adolescent engaged in various behaviors in the 12 months (0=*never* to 3=*5 or more times*; α=.83). Low school participation is a dichotomous indicator of whether they reported not participating in any school clubs, organizations or teams (0=*any*, 1=*none*). Family risk factors are assessed with four variables. Low parental control is measured as the sum of seven items asking whether their parents let them make their own decisions about curfew, who they hang around with, and so forth (0=*no*, 1=*yes*; α=.59). Closeness to mother is assessed by the question “How close do you feel to your mother?” (0=*not at all* to 5=*very much*). Separate items asked adolescents whether alcohol and illegal drugs were “easily available” to them in their home (0=*no*, 1=*yes*).

### 2.3 Analytic approach

We examined bivariate associations among the predictor variables to ensure that there were no multicollinearity issues. A series of four nested logistic regression models predicting initiation were then estimated separately for marijuana and binge drinking. The baseline model includes the objective and subjective neighborhood characteristics. A second model adds the personal demographics covariates to the neighborhood characteristics. This is followed by models that add friend information and, finally, the behavioral and family risk factor covariates. Additional models tested interactions of each neighborhood characteristic with each of the four friend characteristics. Regression analyses were corrected for complex sample design effects using strata, cluster, and weight variables (Chantala and Tabor, 1999).

## 3. RESULTS

### 3.1. Marijuana initiation

Marijuana initiation occurred for 12.1% of adolescents during the one-year follow-up. Table 2 shows results of the regression models for marijuana initiation. Of the neighborhood characteristics we examined, residing in a neighborhood with a higher unemployment rate was the most consistent risk factor for adolescents initiating marijuana use. Although the bivariate association was only marginally significant, residing in a neighborhood with a higher unemployment rate became a statistically significant risk factor when controlling for other neighborhood characteristics and the reason why parents reported moving into the neighborhood. The association between living in a neighborhood with a higher unemployment rate and the initiation of marijuana use was not affected by including personal demographics (e.g., gender, age, race/ethnicity, household income, mother's education, whether the family was intact), exposure to deviant peers, behavioral problems

within or outside of school, and family risk factors (e.g., low parental control, the availability of drugs in the home) in the model. None of the other objective or subjective neighborhood characteristics that we examined was significantly associated with the initiation of marijuana use.

In addition, several of the baseline covariates were associated with subsequent marijuana initiation in the fully adjusted multivariate model. Demographic risk factors for initiation include not having an intact nuclear family and younger age; peer risk factors include having a higher proportion of in-school friends who binge drink and having only outside-of-school friends; behavioral risk factors include being a binge drinker at baseline, getting into trouble at school, and engaging in more delinquent behaviors; and family risk factors included low parental control.

### 3.2. Binge drinking initiation

Binge drinking initiation was reported by 16.3% of adolescents (note that these were generally not the same youth who initiated marijuana use; only 14.6% of all initiators began using both substances during the follow-up period). As shown in Table 3, the neighborhood characteristic most consistently associated with the initiation of binge drinking is perceived safety: adolescents are more likely to initiate binge drinking if they report that they usually feel safe in their neighborhood. This association remained after controlling for other neighborhood characteristics and the reason why parents reported moving into the neighborhood. Although the effect diminished somewhat and was no longer statistically significant when personal demographics and friend characteristics were added to the model, it emerged as statistically significant in the fully adjusted model that also included behavioral and family risk factors. The initiation of binge drinking was unrelated to the unemployment rate of the adolescents' residential neighborhood (notable given its association with marijuana initiation) and the other objective and subjective neighborhood characteristics that we examined.

As is the case for marijuana initiation, several of the baseline covariates are significant risk factors for the initiation of binge drinking. Adolescents are more likely to initiate binge drinking if they are older, white (vs. African American), and have a less highly educated mother. The only peer factor associated with initiation is having more friends who are binge drinkers at baseline. Finally, behavioral and family risk factors associated with binge drinking initiation include being a marijuana user at baseline, getting into trouble at school, delinquent behavior, low parental control, and having alcohol easily available in the home.

### 3.3. Moderating Effect of Friend Characteristics

Additional models considering the moderating effects of neighborhood characteristics on each of the friend characteristics were tested (results not shown). Each of the six objective and subjective neighborhood factors was interacted with each of the four friend characteristics. Interaction terms were added individually to the nested models in Tables 2 and 3. None of the interaction terms reached marginal significance ($p < .10$) for either outcome.

## 4. DISCUSSION

Results from this study indicate that select neighborhood characteristics appear relevant to the initiation of marijuana use and binge drinking, although the mechanisms appear to be distinct for each substance. To the best of our knowledge, this is the first study to find that residing in an area with higher unemployment may be more important than other aspects of neighborhood context in increasing an adolescent's risk of initiating marijuana use. This

effect was found after adjusting for a range of other neighborhood, adolescent, friend and family characteristics, bolstering confidence that it actually reflects the influence of residing in a neighborhood with higher unemployment on adolescent risk behavior. Given that unemployed adults are more likely to initiate or escalate drug use compared to those who are employed (Green et al., 2010; Merline et al., 2004), residing in a neighborhood with high unemployment may increase adolescents' exposure to adults who use drugs. This greater exposure may weaken adolescents' beliefs about the potential harm of marijuana use and strengthen their positive expectancies for use (see Lambert et al., 2004), as well as provide more opportunities for experimentation. Adolescents may also be at higher risk for involvement in drug selling and related activities if they foresee few employment opportunities for themselves and have less hope for the future (Wilson et al., 2005); if so, this would help explain the stronger association of neighborhood unemployment with drug use relative to binge drinking. This finding of an association between neighborhood unemployment and marijuana initiation may also help shed light on the increase in youth marijuana use in the U.S. during the past four years (Johnston et al., 2011), which coincided with the economic recession and relatively high unemployment rates. Greater access to evidence-based drug prevention programs, such as mandated school-based programs or voluntary after-school programs (D'Amico et al., 2012), may be particularly needed in communities with high unemployment.

Our results also indicate that adolescents who usually felt safe in their neighborhood were more likely to initiate binge drinking compared to those who felt less safe, adjusting for a range of other neighborhood, adolescent, friend and family factors. Although this association was not necessarily expected, and perceived safety was assessed in a limited fashion by a single item, it adds to a small literature suggesting that certain aspects of neighborhood advantage may increase the likelihood of adolescent alcohol use (e.g., Snedker et al., 2009; Trim and Chassin, 2008). Although admittedly speculative, it may be the case that the general indicator of perceived safety used in this study was assessing feelings of safety based on factors other than environmental threats, such as low parental supervision in the neighborhood from permissive or absent parents, which might both foster a sense of neighborhood safety and increase the likelihood of binge drinking (e.g., van der Zwaluw et al., 2008). In contrast, studies that ask youth about their perceptions of neighborhood safety in the context of specific negative events – whether witnessed, experienced, or feared – tend to find the expected associations with higher substance use (Choi et al., 2006; Theall et al., 2009). This type of specific, event-based measure of neighborhood perceptions may also be more strongly correlated with objective measures of neighborhood disorganization and, when these indicators of neighborhood context are examined together, exhibit a more similar pattern of associations with adolescent substance use than was found in the present study.

Adolescents were more likely to initiate marijuana use and binge drinking if a higher proportion of their school-based friends binge drank, consistent with the larger literature on homophily in adolescent substance use (Connell et al., 2010; Creemers et al., 2010; Duan et al., 2009). Peer binge drinking may have a stronger effect than peer marijuana use on initiation due to its greater prevalence and thus observability. It was also the case that adolescents were more likely to initiate marijuana use in particular if all of their friend nominations consisted of peers outside of their school. Having exclusively outside-of-school friendships may be a marker of greater deviancy, as suggested by Add Health analyses that have linked it with a tendency towards perpetrating serious violence (Haynie and Payne, 2006), which might be one reason why it was more strongly associated with the initiation of illicit drug use than binge drinking. However, the associations of neighborhood characteristics with initiation could not be explained by adolescents' greater exposure to substance-using friends or only having outside-of-school friends, contradicting previous

findings that some neighborhood effects on substance use can be accounted for by peer influence processes. We further hypothesized that `risky' neighborhood characteristics would heighten the negative influence of deviant peers on substance use, but found no evidence to support this idea for either marijuana use or binge drinking. These findings may suggest that peer effects on substance use are pervasive, and are not strongly impacted by neighborhood features that provide more or less opportunities for substance use. Perhaps these peer processes largely play out in school settings that are structured fairly similarly across different neighborhoods. It may also be the case that the peer effects observed in this study are not due to friends' shared opportunities for substance use (that are likely to differ based on neighborhood characteristics), but rather are the result of interpersonal processes such as behavior modeling and imitation that are less impacted by context.

In interpreting results from this study, it is important to keep in mind that some of the measures had relatively low reliabilities or were single items, and the absence of a lifetime measure of binge drinking may have resulted in some adolescents being misclassified as non-initiates at baseline. Although not a limitation per se, it is also important to emphasize that most of the associations that we examined between neighborhood characteristics and initiation were not significant. These issues, combined with the general lack of longitudinal research examining how neighborhood characteristics are related to the initiation of marijuana use and binge drinking during adolescence, highlights the importance of replicating these findings.

Results point to three important directions for future research on neighborhood context and adolescent substance use. First, there is a need for additional psychometric work on commonly used measures of perceived neighborhood context to better understand what they are measuring and how they relate to objective neighborhood conditions. Second, there is a need to better understand the mechanisms through which neighborhood context influences the initiation of substance use, including substance-specific mechanisms, in order to inform prevention efforts. Existing studies have often focused on a single substance or used a composite substance use measure. Examining multiple substances within the same study (and, in the case of the present study, essentially within the same group of adolescents given the substantial overlap in our two samples), allows for the documentation of how certain neighborhood characteristics are differentially associated with the initiation of different types of substance use. Finally, although this study found little evidence for interactive effects between neighborhood and friend characteristics, further research in this area is warranted given that so little attention has focused on the potential moderating effects of neighborhood context on established risk factors for initiation.

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## Table 1

Description of Study Variables (Unweighted)

| Variable | Marijuana Sample Mean (SD) or Proportion | Binge Sample Mean (SD) or Proportion |
|---|---|---|
| **Neighborhood Characteristics** | | |
| Proportion Below Poverty Line | 0.14 (0.13) | 0.14 (0.13) |
| Proportion Households Female-Headed | 0.07 (0.07) | 0.07 (0.07) |
| Unemployment Rate (Percent) | 7.46 (5.62) | 7.56 (5.69) |
| Residential Instability | 0.57 (0.15) | 0.56 (0.15) |
| Neighborhood Cohesion | 0.76 (0.43) | 0.75 (0.43) |
| Perceived Safety | 0.90 (0.29) | 0.90 (0.31) |
| Selected Neighborhood | 0.82 (0.38) | 0.81 (0.39) |
| Moved Between Waves | 0.05 (0.22) | 0.05 (0.21) |
| **Personal Demographics** | | |
| Male | 0.46 (0.50) | 0.46 (0.50) |
| Age (in years) | 15.02 (1.59) | 15.01 (1.57) |
| Black | 0.20 (0.40) | 0.23 (0.42) |
| Hispanic | 0.15 (0.36) | 0.15 (0.36) |
| Other Race (reference category = white) | 0.10 (0.29) | 0.10 (0.30) |
| Household Income (in thousands) | 46.94 (50.35) | 45.88 (43.64) |
| Mother's Education | 4.12 (1.67) | 4.13 (1.67) |
| Both Parents In Home | 0.72 (0.45) | 0.71 (0.46) |
| **Friends** | | |
| Proportion School Friends Using Marijuana | 0.06 (0.18) | 0.06 (0.19) |
| Proportion School Friends Binge Drinking | 0.14 (0.29) | 0.13 (0.27) |
| Only Outside-of-School Friends | 0.17 (0.38) | 0.18 (0.38) |
| Best Frierd a “Good Influence” | 0.65 (0.48) | 0.64 (0.48) |
| **Behavioral and Family Risk Factors** | | |
| Respondent Marijuana Use at Wave 1 | ---- | 0.05 (0.22) |
| Respondent Binge Drinking at Wave 1 | 0.12 (0.33) | ---- |
| Trouble at School | 3.68 (2.65) | 3.76 (2.70) |
| Delinquency | 2.97 (3.59) | 3.16 (3.86) |
| Low School Participation | 0.13 (0.34) | 0.14 (0.35) |
| Low Parental Control | 4.92 (1.56) | 4.92 (1.56) |
| Closeness to Mother | 4.48 (1.05) | 4.46 (1.06) |
| Drugs Available In Home | 0.02 (0.13) | 0.02 (0.14) |
| Alcohol Available In Home | 0.28 (0.45) | 0.28 (0.45) |

*Drug Alcohol Depend*. Author manuscript; available in PMC 2014 February 01.

**Table 2**

Odds Ratios and 95% Confidence Intervals from Logit Models Predicting Marijuana Use Inititation

| | Bivariate | [1] | [2] | [3] | [4] |
|---|---|---|---|---|---|
| **Neighborhood Characteristics** | | | | | |
| Proportion Below Poverty Line | 1.16 (0.43, 3.14) | 0.43 (0.15, 1.27) | 0.39 (0.13, 1.15)† | 0.38 (0.13, 1.12)† | 0.51 (0.15, 1.69) |
| Proportion Households Female-Headed | 2.19 (0.21, 22.52) | 1.25 (0.10, 15.47) | 1.23 (0.09, 17.19) | 1.20 (0.09, 16.81) | 2.16 (0.14, 34.60) |
| Unemployment Rate (Percent) | 1.02 (1.00, 1.05)† | 1.04 (1.01, 1.06)** | 1.04 (1.01, 1.06)** | 1.03 (1.01, 1.06)** | 1.03 (1.01, 1.06)* |
| Residential Instability | 1.18 (0.50, 2.79) | 1.18 (0.49, 2.84) | 1.30 (0.52, 3.25) | 1.32 (0.51, 3.41) | 1.69 (0.61, 4.66) |
| Neighborhood Cohesion | 0.84 (0.67, 1.05) | 0.83 (0.64, 1.08) | 0.86 (0.66, 1.12) | 0.85 (0.65, 1.11) | 0.95 (0.71, 1.25) |
| Perceived Safety | 1.15 (0.68, 1.93) | 1.26 (0.76, 2.09) | 1.29 (0.77, 2.15) | 1.26 (0.77, 2.08) | 1.58 (0.95, 2.63)† |
| Selected Neighborhood | 1.28 (0.94, 1.74) | 1.31 (0.96, 1.79)† | 1.30 (0.95, 1.77) | 1.31 (0.96, 1.79)† | 1.31 (0.94, 1.83) |
| Moved Between Waves | 1.51 (0.97, 2.36)† | 1.50 (0.98, 2.30)† | 1.41 (0.91, 2.19) | 1.37 (0.88, 2.12) | 1.37 (0.87, 2.16) |
| **Personal Demographics** | | | | | |
| Male | 0.93 (0.74, 1.16) | | 0.95 (0.76, 1.19) | 0.98 (0.78, 1.22) | 0.80 (0.63, 1.02)† |
| Age | 0.98 (0.90, 1.06) | | 0.98 (0.90, 1.06) | 0.95 (0.88, 1.03) | 0.91 (0.84, 0.99)* |
| Black | 0.91 (0.69, 1.20) | | 0.81 (0.61, 1.07) | 0.88 (0.66, 1.18) | 0.91 (0.66, 1.26) |
| Hispanic | 1.09 (0.76, 1.57) | | 1.04 (0.70, 1.56) | 1.07 (0.72, 1.59) | 1.08 (0.73, 1.60) |
| Other Race (reference category = white) | 1.11 (0.75, 1.63) | | 1.08 (0.74, 1.59) | 1.09 (0.75, 1.57) | 1.10 (0.75, 1.62) |
| Household Income | 1.00 (1.00, 1.00) | | 1.00 (1.00, 1.00) | 1.00 (1.00, 1.00) | 1.00 (1.00, 1.00) |
| Mother's Education | 0.95 (0.88, 1.02) | | 0.96 (0.89, 1.04) | 0.96 (0.89, 1.04) | 0.97 (0.90, 1.05) |
| Both Patents In Home | 0.70 (0.55, 0.89)** | | 0.69 (0.53, 0.90)** | 0.71 (0.55, 0.92)** | 0.76 (0.58, 1.00)* |
| **Friends** | | | | | |
| Proportion School Friends Using Marijuana | 2.55 (1.67, 3.88)*** | | | 1.60 (0.98, 2.63)† | 1.53 (0.85, 2.73) |
| Proportion School Friends Binge Drinking | 2.15 (1.65, 2.81)*** | | | 2.13 (1.57, 2.88)*** | 1.77 (1.25, 2.49)*** |
| Only Outside-of-School Friends | 1.24 (0.94, 1.64) | | | 1.52 (1.13, 2.05)** | 1.39 (1.02, 1.88)* |
| Best Friend a “Good Influence” | 0.89 (0.74, 1.06) | | | 0.93 (0.77, 1.12) | 1.01 (0.83, 1.23) |
| **Behavioral and Family Risk Factors** | | | | | |
| Respondent Binge Drinking at Wave 1 | 2.74 (2.07, 3.63)*** | | | | 1.91 (1.39, 2.63)*** |
| Trouble at School | 1.15 (1.11, 1.19)*** | | | | 1.10 (1.05, 1.14)*** |

| | Bivariate | [1] | [2] | [3] | [4] |
|---|---|---|---|---|---|
| Delinquency | 1.14 (1.12, 1.17) *** | | | | 1.10 (1.08, 1.12) *** |
| Low School Participation | 1.22 (0.89, 1.69) | | | | 1.22 (0.91, 1.63) |
| Low Parental Control | 1.10 (1.00, 1.21) † | | | | 1.11 (1.01, 1.22) * |
| Closeness to Mother | 0.85 (0.79, 0.92) *** | | | | 0.93 (0.85, 1.01) † |
| Drugs Available In Home | 1.33 (0.64, 2.77) | | | | 0.95 (0.42, 2.15) |
| Alcohol Available In Home | 1.22 (0.95, 1.59) | | | | 1.08 (0.82, 1.42) |

† $p<.10$

* $p<.05$,

** $p<.01$,

*** $p<.001$,

## Table 3

Odds Ratios and 95% Confidence Intervals from Logit Models Predicting Binge Drinking Inititation

| | Bivariate | [1] | [2] | [3] | [4] |
|---|---|---|---|---|---|
| **Neighborhood Characteristics** | | | | | |
| Proportion Below Poverty line | 0.36 (0.11, 1.12)† | 0.51 (0.12, 2.18) | 0.73 (0.17, 3.18) | 0.71 (0.16, 3.13) | 1.02 (0.24, 4.40) |
| Proportion Households Female-Headed | 0.18 (0.01, 2.43) | 0.60 (0.05, 7.81) | 1.77 (0.14, 22.40) | 2.06 (0.19, 22.58) | 2.10 (0.18, 24.08) |
| Unemployment Rate (Percent) | 0.98 (0.96, 1.01) | 1.00 (0.97, 1.02) | 1.00 (0.98, 1.02) | 0.99 (0.97, 1.02) | 1.00 (0.98, 1.02) |
| Residential Instability | 1.17 (0.56, 2.42) | 1.04 (0.50, 2.16) | 1.18 (0.59, 2.40) | 1.15 (0.56, 2.35) | 1.29 (0.62, 2.67) |
| Neighborhood Cohesion | 1.04 (0.87, 1.23) | 0.96 (0.80, 1.13) | 0.99 (0.83, 1.19) | 0.99 (0.82, 1.18) | 1.10 (0.91, 1.34) |
| Perceived Safety | 1.55 (1.07, 2.24)* | 1.45 (1.02, 2.06)* | 1.42 (0.97, 2.06) † | 1.35 (0.93, 1.96) | 1.52 (1.02, 2.27)* |
| Selected Neighborhood | 1.01 (0.81, 1.26) | 0.94 (0.76, 1.16) | 0.91 (0.74, 1.12) | 0.91 (0.74, 1.12) | 0.95 (0.77, 1.17) |
| Moved Between Waves | 0.79 (0.52, 1.21) | 0.83 (0.54, 1.27) | 0.76 (0.49, 1.19) | 0.75 (0.48, 1.17) | 0.83 (0.53, 1.30) |
| **Personal Demographics** | | | | | |
| Male | 1.06 (0.89, 1.27) | | 1.02 (0.85, 1.23) | 1.05 (0.88, 1.27) | 0.93 (0.77, 1.13) |
| Age | 1.22 (1.14, 1.29)*** | | 1.24 (1.17, 1.32)*** | 1.21 (1.14, 1.28)*** | 1.19 (1.12, 1.27)*** |
| Black | 0.38 (0.27, 0.53)*** | | 0.33 (0.21, 0.51)*** | 0.36 (0.23, 0.55)*** | 0.31 (0.21, 0.47)*** |
| Hispanic | 1.17 (0.87, 1.58) | | 0.97 (0.70, 1.33) | 0.99 (0.72,1.35) | 1.04 (0.76,1.42) |
| Other Race (reference category = white) | 0.86 (0.60, 1.23) | | 0.74 (0.50, 1.09) | 0.75 (0.51, 1.09) | 0.71 (0.49,1.03)† |
| Household Income | 1.00 (1.00, 1.00) | | 1.00 (1.00, 1.00) | 1.00 (1.00, 1.00) | 1.00 (1.00, 1.00) |
| Mother's Education | 0.97 (0.92, 1.02) | | 0.96 (0.91, 1.01)† | 0.96 (0.91, 1.01)† | 0.94 (0.89, 1.00)* |
| Both Patents In Home | 1.06 (0.85, 1.32) | | 0.86 (0.69, 1.07) | 0.89 (0.71, 1.11) | 1.00 (0.30, 1.26) |
| **Friends** | | | | | |
| Proportion School Friends Using Marijuana | 2.76 (2.02, 3.78)*** | | | 1.47 (0.99, 2.17)† | 1.14 (0.74, 1.75) |
| Proportion School Friends Binge Drinking | 2.81 (2.10, 3.76)*** | | | 2.19 (1.58, 3.03)*** | 2.18 (1.59, 3.00)*** |
| Only Outside-of-School Friends | 1.05 (0.81, 1.35) | | | 1.21 (0.94, 1.55) | 1.09 (0.85, 1.39) |
| Best Friend a “Good Influence” | 0.91 (0.76, 1.07) | | | 0.93 (0.78, 1.10) | 1.01 (0.84, 1.22) |
| **Behavioral and Family Risk Factors** | | | | | |
| Respondent Marijuana Use at Wave 1 | 3.33 (2.55, 4.35)*** | | | | 2.06 (1.51, 2.82)*** |
| Trouble at School | 1.11 (1.07, 1.14)*** | | | | 1.07 (1.03, 1.11)*** |
| Delinquency | 1.10 (1.07, 1.12)*** | | | | 1.08 (1.05, 1.11)*** |

| | Bivariate | [1] | [2] | [3] | [4] |
|---|---|---|---|---|---|
| Low School Participation | 1.13 (0.85, 1.51) | | | | 0.95 (0.71, 1.27) |
| Low Parental Control | 1.17 (1.10, 1.25) *** | | | | 1.09 (1.03, 1.16) ** |
| Closeness to Mother | 0.88 (0.82, 0.94) *** | | | | 0.94 (0.87, 1.02) |
| Drugs Available In Home | 1.95 (1.17, 3.24) * | | | | 1.12 (0.63, 1.97) |
| Alcohol Available In Home | 1.66 (1.37, 2.02) *** | | | | 1.43 (1.17, 1.74) *** |

† $p<.10$

* $p<.05$,

** $p<.01$,

*** $p<.001$