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Social Integration in Young Adulthood and the Subsequent Onset of Substance Use and Disorders among a Community Population of Urban African Americans*

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Abstract

Aims—This article examines the association between social integration in young adulthood and the later onset of substance use and disorders through mid-adulthood.

Design—Data come from a community cohort of African Americans followed longitudinally from age 6–42 with four assessment periods.

Setting—The cohort all lived in the Woodlawn neighborhood of Chicago in 1966, an urban disadvantaged setting.

Participants—All Woodlawn first graders in 1966 were asked to participate; 13 families declined (N=1242).

Measurement—Substance use was measured via interview at age 42 and includes the onset of alcohol and drug use disorders and the onset of cocaine/heroin use between ages 32 and 42. Social integration measures were assessed via interview at age 32 and include social roles (employee, spouse, parent), participation in religious and social organizations, and a measure of overall social integration. Control variables were measured in childhood and later in the lifecourse.

Findings—Multivariate regression analyses suggest that unemployment, being unmarried, infrequent religious service attendance, and lower overall social integration in young adulthood predict later adult-onset drug use disorders, but not alcohol use disorders once confounders are taken into consideration. Unemployment and lower overall social integration predict onset of cocaine/heroin use later in adulthood.

Conclusions—Results show meaningful onset of drug use and substance use disorders during mid-adulthood and that social integration in young adulthood seems to play a role in later onset of drug use and drug disorders, but not alcohol disorders.

Keywords

African Americans; Adult-onset substance use; Adult-onset substance use disorders; Social integration; Social roles

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Research on substance use initiation and the onset of substance use disorders typically has focused on adolescence and emerging adulthood. Therefore we know little about risk factors for onset later in the lifecourse yet recent evidence indicates that onset continues into midlife [1]. According to a Lifecourse Social Fields perspective [2], substance use results from the failure to meet developmentally appropriate social tasks. Thus, for adolescents, problems at school, at home, and with peers increase the risk for substance use initiation [3]. For young adults, intimate relationship difficulties and school drop-out predict onset [4–6]. Theoretically, failure within key social fields relevant in adulthood should predict mid-life onset of substances and escalation to substance use disorders. In this paper, we explore if the lack of social integration resulting from nonparticipation in conventional adult social roles drives substance use and disorder onset beyond early adulthood, as this represents a gap in the current literature.

Extant literature finds that social roles can influence the onset, continuation, escalation, and cessation of substance use. For instance, much research has found that the assumption of traditional social roles in young adulthood (e.g., employee, spouse, or parent) protects against mid-life substance use and is a driving force behind declines in substance use and the lower likelihood of initiation after young adulthood [7–10]. Research also suggests strong continuity in use in that those who lack these roles as they enter adulthood are at greater risk of continuation and escalation [7].

Drawing on Sampson and Laub's [11] age-graded theory of informal social control, we hypothesize that a lack of social roles in young adulthood leads to poor social integration, defined as the bond that attaches people to larger society, which instigates the onset of substance use and the escalation to disorders in mid-life. This theory suggests that deviance is more likely to occur when social bonds are weakened or broken. Thus, the informal social controls stemming from the social relations between individuals and institutions (e.g., family, school, work, etc.) at each stage of the life course are a form of social investment or social capital [12]. Social capital is "the knowledge and sense of obligations, expectations, trustworthiness, information channels, norms, and sanctions that these relations engender" [13: p. 503]. In essence, social integration creates social capital and interdependent systems of obligation that make it too costly to engage in deviant activities [11].

While Sampson and Laub's recent research has focused on social control in adulthood facilitating desistance from crime [14,15], theirs is a general theory that predicts both onset and desistance of all forms of deviance, including onset in adulthood. Through their reanalysis of the Glueck sample of 500 delinquents and 500 non-delinquents, Sampson and Laub [16] find approximately 100 adult-onset offenders (defined as age 17 or older) from the original non-delinquent adolescent sample. Analysis of these offenders reveals job instability and poor marital attachment (among the married) as strong predictors of adult onset of crime and deviance (e.g., excessive drinking).

Building upon this research, we hypothesize that the lack of important social roles in young adulthood results in poor bonding to conventional society and therefore low informal social control, which increases the risk for initiation and problematic substance use. Previous research shows that marriage, employment, and custodial parenting are associated with use in adulthood [9,10,17,18], but what is unclear is whether the lack of these social roles predict future onset. We test this hypothesis using data from a community cohort of urban African Americans followed from 1966 through 2003. Thus, this study provides an opportunity to investigate whether the lack of social control stemming from nonparticipation in social roles such as employee, spouse, parent, and social and religious organization member in young adulthood is associated with substance use and disorder onset in mid-life among African Americans.

We consider both the onset of drug use and the escalation from substance use to substance use disorders to allow us to compare different types and levels of involvement. We compare alcohol and drug use disorders to contrast misuse of legal versus illegal substances. We consider heroin and cocaine onset to study illegal substances that are not necessarily at the abuse or dependence level. We control for the propensity for later life onset by including confounding variables in our models, such as gender [3], early onset of substance use [19], childhood behavioral problems [20–22], criminal involvement [23], and education [4,6], all of which have been found to relate to substance involvement, as well as social roles [24–26], in adulthood.

METHODS

Sample

Data come from a longitudinal study of first graders attending school in the Woodlawn neighborhood on the south side of Chicago in 1966–67. During the 1960s, Woodlawn was an African-American community and one of the most socially disadvantaged in Chicago. Nearly all first graders eligible to participate enrolled in the study, minimizing selection bias (only 13 families declined). To date, the study participants have been assessed at four stages: childhood (age 6, N=1242), adolescence (age 15–17, N=705), young adulthood (age 32–33, N=952), and mid-life (age 42–43, N=833). During childhood, information was gathered from the children's mothers or female guardians and first grade teachers on the child's social adaptation, academic performance, behavior, social relationships, and family background. Adolescents and their mothers provided data in 1975–77. In adulthood, the assessments were approximately 90-minute structured interviews mostly conducted in-person by trained African American interviewers. School, criminal and death records also have been collected over time. Detailed descriptions of the study are presented elsewhere [2,20,27].

This paper focuses on those who completed assessments at both young and mid-adulthood and have complete data on control variables (n=725). To determine if attrition results in a biased subsample, we compare those with both adult assessments (n=731) to those who are missing both adult assessments (n=188) and those with only one adult assessment (n=323). We find no differences on childhood, adolescence, or young adulthood poverty or residence, adolescent marijuana or alcohol use, young adult marijuana use, cocaine use, heavy drinking, or church attendance, teenage parenthood, or first grade teacher's ratings of aggression or shyness. However, those not participating in conventional social roles in young adulthood are less likely to complete the mid-life interview.

Measures

Substance Use and Disorders—Incidence of cocaine use, heroin use, drug use disorders (DUDs), and alcohol use disorders (AUDs) between the young adult and mid-life interviews serve as the dependent variables. Heroin use and cocaine use (including crack cocaine) were assessed via self-report in which respondents were asked separately if they had used either substance in the past 10 years. If yes, age of first use was asked. Because of the small number of incident cases of cocaine and heroin use and their similarity in seriousness, we combine these two substances. Thus, cocaine/heroin incidence is defined as initiating cocaine and/or heroin use during the interval between the young adult and mid-life interviews (i.e., to report having never used either cocaine or heroin at the young adult interview and to report first use of one or both at the mid-life interview). We excluded from incident cases anyone who reported onset during this interval but provided an age of first use before age 30 and considered that individual a non-incident case.¹ There are 30 incident

¹We tested the sensitivity of this cut-off age through a series of analyses and found no significant differences in findings.

cases (14 initiated cocaine (mean age 32.5), 11 initiated heroin (mean age 34.0), and 5 initiated both).

Incidence of DUD is defined as meeting lifetime criteria for abuse or dependence for any illegal drug at mid-life with an age of first symptom of 30 or older among those who did not meet this criteria at young adulthood (43 incident cases, mean age = 34.9). Incidence of an AUD is defined as meeting lifetime criteria for abuse or dependence for alcohol at the mid-life interview with an age of first symptom of 30 or older among those who did not meet criteria at the young adult interview (53 incident cases, mean age = 35.8).

The criteria for abuse and dependence are based on the Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition (DSM-III-R) [28] for the young adult interview and the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) [29] for the mid-adult interview. Both were measured by the Composite International Diagnostic Interview (CIDI) [30]. Due to an error in the skip patterns of the CIDI version used in our mid-life interview, participants were asked questions to assess dependence only if they also met the criteria for abuse. In the *DSM IV*, however, dependence can be diagnosed whether or not abuse was present. This error likely led to an underestimation of AUD and DUD as demonstrated by Grant [31]. We estimate this to be approximately 8% in our data. Concordance between DSM-III-R and DSM-IV diagnoses of current and lifetime drug abuse and dependence has been shown to be good in population-based samples [32,33].

Social Roles/Integration—The independent variables are three major social roles (employee, spouse, and parent), two measures of community integration (organizational membership and religious service participation), and a summative measure of roles to represent overall social integration. All social roles/integration variables are self-reported at the young adult interview and represent current status at the time of the interview.

Employment is a dichotomous variable of the participants' current employment status at the time of the young adult interview. Those who were employed full or part-time are coded as employed (65.1%). *Marital status* is the participants' current marital status at the time of the young adult interview and comprises three categories: married (30.3%), living with a partner (8.1%), and being unmarried (61.5%) with those married serving as the reference group. The unmarried category includes those divorced, separated, widowed, or never married. We operationalize marriage in this fashion since research suggests that the formal bonds of marriage provide more social control than a cohabiting partner [5].

For parenting, since there is evidence that living with one's child, not merely being a parent, has been found to be associated with lower rates of drug use [8], we make the distinction between having children and serving in a more formal parenting role by living with one's children. Thus, *parenthood* is a three category variable defined as whether children (biological children and step-children) were living in the household (60.3%), outside the household (15.0%), or there were no children at the time of the young adult interview (24.7%) with those with children in the household serving as the reference group.

We include religious participation as a key indicator of a community social role among African Americans [34] since numerous studies have found an inverse association between religiosity and substance use [35–37]. *Religious service attendance* at young adulthood is based on a single question about usual attendance of services using five categories (less than once a year to nearly everyday), which is dichotomized as weekly or more (29.2%) versus less than weekly. We also include non-religious organizational participation as an indicator of community social roles as a contrast to religious participation.

Social organization membership is defined as belonging to a non-religious civic, social, or professional group at young adulthood. The original question included 11 categories of organizations such as parent groups, school groups, labor unions, neighborhood or block clubs, civil or women's rights groups, sororities, fraternities, social clubs, and school council.ⁱⁱ Answers were collapsed into any social organization membership (55.0%) versus no organizational membership.

Finally, we include an indicator of overall social integration using a summative measure of the number of social roles. To define social integration, we draw on the idea of cumulative advantage [38,39], which predicts that those with more social ties will be more socially integrated and have more social control against substance use [40] as well as better outcomes in general than those with fewer social ties [41,42]. *Overall social integration* is a dichotomous variable representing high (3 or more) (44.5%) or low participation in social roles. The original variable which ranges from zero to five was created by counting the number of social roles an individual occupied ranging from zero (no participation) to five (married, employed, parent, belonging to social organizations, and attending church weekly).ⁱⁱⁱ We adopt this strategy because we are interested in the effect of an accumulation of multiple social control agents as it may be that the overall frequency of social roles is more important than any one role, and this measure captures that possibility. Thus, we attempt to capture an overall measure of social integration by combining our individual measures, as opposed to including the individual roles and organizational memberships into a single regression model to assess the independent effects of each.

Control Variables—In order to isolate the association between social roles/integration and substance use and disorders and control for the selection into social roles, we include five potential confounding variables. These control variables include gender, childhood behavioral problems, early onset substance use, education, and criminal involvement. Childhood behavioral problems are based on first grade teachers' ratings of shyness and aggression on a four-point scale. These ratings are combined to create a categorical variable of both shy and aggressive, aggressive only, shy only, or neither (reference group). Early onset substance use is defined as having initiated alcohol, tobacco, or marijuana before age 15 and is self-reported retrospectively at the young adult interview by asking about lifetime use and age of onset. Education is a continuous measure of the number of school years an individual has completed by the young adult interviews as self-reported at this interview (range 4–20). Criminal involvement is based on having an adult criminal record by young adulthood determined by searching Federal Bureau of Investigation and Chicago criminal records in 1993.

Analysis Plan

To explore social roles associated with incidence of substance use and disorders, we restrict the denominator for analyses to those at risk of onset (i.e., non-users or non-disordered in young adulthood), removing those who previously reported cocaine/heroin use or previously met criteria for a lifetime DUD or AUD. This results in a different sample size for each set of regression equations; 515 are at risk of initiating cocaine/heroin, 625 are at risk of onset of a drug disorder, and 593 are at risk of onset of an AUD (see Table 1). This ensures that

ⁱⁱTo test bias towards parents by including parent and school groups in our summary measure, we reran analysis excluding these items and found no significant differences.

ⁱⁱⁱThis dichotomization strategy was adopted to allow for small cell sizes due to rare outcomes and literature suggesting a non-linear association between the number of social roles and health outcomes [56]. Farrington and Loeber [57, p.121] find that, as opposed to losing information by dichotomizing, there is a decrease in classification error when there are fewer categories into which a person can be assigned and conclude that dichotomization greatly simplifies the presentation of results, yields findings that are easily understandable by a wide audience, and shows no sign in our analyses of producing misleading conclusions. We ran the analysis with both a continuous and dichotomous measure and found no major differences.

the social roles precede onset as onset is restricted to the interval between young and mid-adulthood. Multiple unadjusted and adjusted logistic regression analyses are performed for each outcome to estimate the associations between social roles/integration and incidence of substance use and disorder. SPSS 15.0 is used for all analyses.

RESULTS

Table 1 shows the onset of substance use and disorders for the total group and by gender. Overall, we find that onset for all three outcomes is more common in adolescence and early adulthood (non-incident cases) than after our young adult interview (incident cases), especially for cocaine/heroin in which only 4% of the total population onset between young and mid-adulthood. Almost 6% of the population develop a DUD and over 7% develop an AUD between young and mid-adulthood. In terms of gender, for cocaine/heroin, men are more likely than women to be non-incident users; the rate of incident cases is similar across gender. For both DUDs and AUDs, men have significantly higher rates of incident and non-incident onset than women.

Association of Covariates and Onset

Between young and mid-adulthood, *among those at risk of onset*, 5.8% (N=30) initiate cocaine and/or heroin, 6.9% (N=43) develop a DUD, and 8.9% (N=53) develop an AUD (see Table 2). In terms of gender differences, most notably, *among those who did not meet criteria in young adulthood for an AUD*, the percentage of men who develop an AUD (14.2%) is more than twice that of women (5.7%; $p=.001$). Early onset of substance use and childhood behavioral problems did not consistently differentiate onset. Lower education signals significantly greater risk of all outcomes. Finally, those with a criminal record have more than 3 times the risk of onset for each outcome.

Incidence and Adult Social Roles

Employment and overall social integration are the young adult social roles that relate to the subsequent onset of cocaine/heroin in the adjusted models (see Table 3). Those who are unemployed are four times more likely to initiate cocaine/heroin than those who are employed in young adulthood. While marriage, parenting, social organizational membership, and religious service attendance individually are not associated with cocaine/heroin onset in the adjusted models, low overall social integration does predict cocaine/heroin onset. Those participating in fewer social roles in young adulthood have four times the risk of subsequent cocaine/heroin initiation compared to those with more social roles in the adjusted model.

Several social roles are associated with a DUD onset in the adjusted models (see Table 3). Unemployed young adults are twice as likely to develop a DUD as those who are employed; those unmarried in young adulthood are 2.5 times more likely to develop a drug disorder between young and mid-adulthood than those married; and those with infrequent religious services attendance were eight times more likely to develop a drug disorder than those who attended religious services weekly. Overall social integration related to developing a drug disorder with those with fewer social roles having over three times the risk compared to those with more roles ($p<.01$).

In contrast, no associations were found between social roles in young adulthood and the onset of an AUD between young and mid-adulthood once other explanatory variables are taken into consideration (see Table 3). Although unemployment, having children outside of the household, and lack of organization membership are significant predictors of AUD onset, these effects disappear in the adjusted models.

DISCUSSION

While the majority of substance use and disorder onset occur prior to our young adult interview (as others have found), the rates of onset between young and mid-adulthood are considerable. Overall, 28% of heroin users and 8% of cocaine users initiate use in their 30s and 40s. Further, similar to rates found from the National Comorbidity Survey [43], 29% of those with a lifetime AUD and 30% of those with a DUD onset during this time.

Social control and integration stemming from social roles in young adulthood seem to influence drug, but not alcohol, onset. Unemployment in young adulthood is a risk factor for the subsequent onset of cocaine/heroin, even after controlling for criminal involvement which may result from unemployment and is highly associated with onset. Unemployment is also associated with the development of a DUD with unemployed young adults having more than double the risk of developing a DUD in the following 10 years than those employed. These findings are in line with Sampson and Laub's theory [11], which posits that the lack of stable employment weakens a person's informal social control and frees that person to onset substance use and misuse.

In terms of marriage, we were surprised that we only found an effect on DUD with those unmarried having 2.5 times the risk of DUD onset in the interval between young and mid-adulthood as those married at young adulthood. The lack of social control provided by a spouse seems to place an individual at risk of developing a drug disorder in adulthood, which is consistent with findings for other health behaviors [44]. However, it may be that quality of marriage is the more critical element in predicting deviant behaviors rather than marriage itself [16], and future research may want to explore the quality of social roles as we were unable to test role quality in this study.

In contrast, we did not find any association between parenting in young adulthood and later substance use and disorder onset. The role of parenting as a source of informal social control may be minimal, especially among African Americans, due to the rarity of traditional two-parent households, compared to white populations. There may also be important gender interactions (which we are unable to adequately determine due to the infrequency of our outcomes) as parenting may provide differential social control for women and men. Further work should test gender interactions for all social roles as others have found social control of certain roles to vary by gender [44].

While there was no significant influence of organizational membership on our outcomes, religious participation was inversely associated with the onset of a drug disorder. This lack of church attendance may reduce a person's social control and remove the accompanying constraints of obligation and expectation of one's church community that can allow drug use to escalate to problematic use.

Finally, we found our measure of overall social integration in young adulthood to be related to later drug use and disorder onset. Specifically, those with a low number of social roles had 3–4 times the risk of developing a drug disorder or initiating cocaine/heroin than those with a high number of social roles. Thus, it may be that the specific social role itself is not the critical factor in protecting against substance use and disorders but the overall amount of social integration and subsequent informal social control that constrains a person initiating these behaviors that is important, thus implying a possible dosage effect. Further research on the differences between individual social roles and the overall social integration from multiple roles on substance use and disorder onset is warranted.

Interestingly, while the assumption of certain social roles and social integration seem to play a part in the adult development of a DUD or cocaine/heroin, these overall are unrelated to

the onset of an AUD. The legality of alcohol and the social acceptability differences between alcohol and illegal drugs might explain the difference. Social roles may in fact facilitate alcohol use and provide alcohol opportunities. Thus, social control influences may be less strong for alcohol compared to illegal drugs, indicating a potential direction for future research.

There are a number of considerations when interpreting our findings. The first relates to attrition. We expect that we may be underestimating the impact of social roles on adult-onset drug and alcohol outcomes as those less likely to participate in roles were more likely to be lost to follow-up. Second, because of the time between our young and mid-adult follow-ups, we defined onset as individuals who reported first use or first met disorder criteria at the mid-adult follow-up and reported their age of onset as 30 or greater. As a result, there may be some classification error and underestimation of mid-adult onset cases. Third, the structure of the CIDI interview used to assess dependence also likely led to an underestimation of cases, thereby limiting the precision and power of our findings [32]. Fourth, due to the small number of cases, it was necessary to combine abuse and dependence even though research suggests that they have both shared and unique etiologies [45–47]. Future work should test if associations differ when abuse and dependence are examined as separate outcomes.

Finally, in terms of generalizability, Woodlawn participants are a specific population, being a community-based sample growing up in an urban environment with a greater risk of drug use in midlife than those found in national studies [1]. While this population is highly relevant when considering adult-onset drug and alcohol problems, findings may not generalize to other populations. Compared to Whites, African Americans have lower rates of substance use in adolescence but higher rates in adulthood [48]. One explanation of this “cross-over effect” is later age of onset for African Americans, which may be tied to differential participation in social roles. Researchers have found that the education sequence for African Americans stretches over a longer period of time than for Whites [49], ages and rates of marriages vary dramatically by race [50], and employment patterns differ in accessibility and stability by race [51,52]. There is also evidence that social roles have different meaning and convey differential health benefits for African Americans compared to White populations [53]. For example, others have found employment has more and marriage has fewer health benefits for African Americans than Whites [54,55]. Further, social role participation may be more highly tied to poverty for African Americans than Whites. Thus future research should compare African American and White populations in studying the effect of social roles on adult drug onset and may want to test the interaction between social roles and poverty.

While we were unable to test the intricacies of social roles due to data limitations (e.g., the lack versus the loss of a social role), this work provides preliminary support for the influence of social roles in young adulthood on later onset substance use and disorder in a community cohort of African Americans followed from childhood to mid-adulthood. This addresses a significant gap in the current research base about the contribution of social roles to the development of substance use and disorders later in the lifecourse. Our findings suggest that prevention efforts related to substance use and disorder should not discount adults, considering almost a third of our population had an onset between young and mid-adulthood. Furthermore, this study provides evidence that programs aimed at preventing adult onset should focus on unemployed and poorly integrated individuals, as they seem to have greater risk.

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Table 1

Distribution of Cocaine/Heroin Use and Drug and Alcohol Use Disorders at Mid-Adulthood by Gender (age 42; N=725)

| Total | Cocaine/Heroin** N (%) | | | Drug Use Disorder** N (%) | | | Alcohol Use Disorder** N (%) | | |
|-----------------------|------------------------|------------|------------|---------------------------|------------|------------|------------------------------|------------|------------|
| | Men | Women | Total | Men | Women | Total | Men | Women | Total |
| Incident Case | 13 (4.0) | 17 (4.2) | 30 (4.1) | 24 (7.5) | 19 (4.7) | 43 (5.9) | 32 (10.0) | 21 (5.2) | 53 (7.3) |
| No Use/Non-Disordered | 191 (59.5) | 294 (72.8) | 485 (66.9) | 238 (74.1) | 344 (85.1) | 582 (80.3) | 194 (60.4) | 346 (85.6) | 540 (74.5) |
| Non-incident Case | 117 (36.4) | 93 (23.0) | 210 (29.0) | 59 (18.4) | 41 (10.1) | 100 (13.8) | 95 (29.6) | 37 (9.2) | 132 (18.2) |

** p<.01 based on a χ^2 test (df=2)

Note: Incident case is defined as any participant who reported never using that substance at the young adult interview (or did not meet lifetime diagnostic criteria at the young adult interview) and reported use/met lifetime criteria at the mid-life interview with age of onset greater than or equal to 30 years of age. Non-incident cases reported use or met criteria for the disorder at the young adult interview.

Table 2

Demographic Characteristics for Those at Risk of Onset and by Onset of Cocaine/Heroin, a Drug Disorder, and an Alcohol Disorder

| | Total Sample (N=725) | Cocaine/Heroin Onset (N=515) | Drug Use Disorder Onset (N=625) | Alcohol Use Disorder Onset (N=593) |
|---------------------------------------|----------------------|------------------------------|---------------------------------|------------------------------------|
| | % of Total | % Onset | % Onset | % Onset |
| Those at Risk of Onset | -- | 5.8 | 6.9 | 8.9 |
| Gender | | | | |
| Female | 55.7 | 5.5 | 5.2 | 5.7 |
| Male | 44.3 | 6.4 | 9.2 [†] | 14.2 ^{**} |
| <i>Childhood Behavior</i> | | | | |
| Shy and Aggressive | 13.0 | 6.8 | 8.9 | 11.6 |
| Shy Only | 15.7 | 3.3 | 3.9 | 10.8 |
| Aggressive Only | 16.8 | 13.0 | 8.9 | 10.4 |
| Neither | 54.5 | 4.5 [*] | 6.7 | 7.4 |
| <i>Early Onset Substance Use</i> | | | | |
| Yes | 36.0 | 5.3 | 7.1 | 11.8 |
| No | 64.0 | 7.1 | 6.4 | 7.5 [†] |
| <i>Young Adult Years of Schooling</i> | | | | |
| <12 | 22.6 | 12.1 | 14.3 | 14.6 |
| 12+ | 77.4 | 4.5 [*] | 4.9 ^{**} | 7.4 [*] |
| <i>Young Adult Criminal Record</i> | | | | |
| Yes | 38.5 | 11.6 | 12.3 | 18.8 |
| No | 61.5 | 3.1 ^{**} | 3.9 ^{**} | 4.0 ^{**} |

**
p<.01

*
p<.05

[†]
p<.10

Note: Significance represents statistically significant different rates of onset by levels of the independent variable based on a chi-square test. Young adult variables were measured in 1992–93 (age 32–33). Childhood variables were measured in 1966–67 (age 6–7).

Table 3
 Unadjusted and Adjusted Associations of Young Adult Social Roles/Integration and Subsequence Heroin/Cocaine Initiation and Onset of Drug and Alcohol Use Disorders

| SOCIAL ROLES | Cocaine/Heroin Onset (N=515) | | Drug Use Disorder Onset (N=625) | | Alcohol Use Disorder Onset (N=593) | |
|---|------------------------------|------------------------|---------------------------------|------------------------|------------------------------------|---------------------|
| | Odds Ratio (95% CI) | | Odds Ratio (95% CI) | | Odds Ratio (95% CI) | |
| | Unadjusted | Adjusted | Unadjusted | Adjusted | Unadjusted | Adjusted |
| Unemployed | 5.808** (2.596–12.995) | 4.196** (1.767–9.962) | 3.178** (1.691–5.973) | 2.431* (1.198–4.933) | 1.881* (1.063–3.329) | 1.351 (0.694–2.630) |
| Marital Status | | | | | | |
| Married (ref) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Living with Partner | 1.725† (0.933–5.902) | 1.238 (0.228–6.723) | 1.929 (.480–7.754) | 1.364 (0.328–5.668) | 1.350 (0.470–3.879) | 0.803 (0.263–2.452) |
| Unmarried | 2.347 (0.334–8.912) | 2.013 (0.769–5.268) | 2.745* (1.192–6.323) | 2.500* (1.047–5.966) | 1.014 (0.546–1.883) | 0.850 (0.436–1.659) |
| Parenting Status | | | | | | |
| Children in Household (ref) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Children Outside Household | 1.304 (0.427–3.980) | 0.805 (0.296–2.187) | 1.620 (0.674–3.893) | 0.817 (0.302–2.207) | 2.563* (1.237–5.310) | 0.987 (0.427–2.282) |
| No Children | 0.757 (0.297–1.930) | 0.776 (0.220–2.741) | 0.976 (0.459–2.074) | 1.000 (0.446–2.242) | 1.124 (0.557–2.268) | 1.032 (0.485–2.196) |
| Infrequent Religious Service Attendance (<weekly) | 2.658† (0.999–7.070) | 2.203 (0.805–6.031) | 9.884** (2.366–41.297) | 8.289** (1.963–35.008) | 1.283 (0.679–2.427) | 0.964 (0.492–1.889) |
| No Organizational Membership | 1.122 (0.533–2.361) | 0.917 (0.420–2.004) | 2.251* (1.134–4.470) | 1.772 (0.866–3.627) | 1.867* (1.023–3.405) | 1.538 (0.812–2.911) |
| Low Social Roles (< 3 roles) | 5.363** (2.020–14.241) | 4.311** (1.574–11.807) | 4.375** (1.995–9.592) | 3.479** (1.545–7.830) | 1.750 (0.974–3.145) | 1.710 (0.914–3.199) |

CI=Confidence Interval

** p<.01

* p<.05

† p<.10.

Adjusted models control for gender, childhood aggression/shyness, early onset substance use, young adult criminal record, and education.