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What's Drugs Got to Do With It? Examining the Relationship Between Drug Onset and Duration with Criminal Outcomes in an African American Cohort

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Abstract

Background: The association of drug use onset and duration with criminal careers has rarely been studied over the life course among African Americans, who are disproportionately impacted by the criminal justice system.

Methods: This study uses data from a community cohort of urban African Americans, first assessed at age 6 (n=1,242) and followed into midlife. Data come from both self-reports (n=1,053 in adulthood) and official crime records (n=1,217). Regression analyses among those who used marijuana, cocaine, and/or heroin and had complete arrest data (n=614) assess the association between adolescent vs. adult initiation, short vs. long duration of use, and their interaction with the outcomes of arrest, incarceration, and criminal career length, as well as meeting criteria for a drug use disorder.

Results: Findings show that onset and duration are highly related, but when independent effects of duration and onset are assessed, only duration is a statistically significant predictor of all four crime outcomes, as well as a predictor of meeting criteria for a drug use disorder in adjusted

regression models. Associations of duration with arrests held for all crime types (i.e., drug, property, violence). Adolescent vs. adult drug onset only predicted meeting lifetime criteria for a drug use disorder. The interaction of onset and duration was not statistically significant in any models. No appreciable differences were observed in gender specific models.

Discussion: Findings suggest that shortening drug use duration may have a greater impact on reducing the association of drug use with crime for African Americans than delaying onset.

Keywords

Drug use trajectory; Drug use initiation; Criminal justice system involvement; Longitudinal data

1. Introduction

Adolescents who initiate substance use at younger ages have more negative drug use outcomes over the life course, including drug use disorders, than those who initiate later (Grant & Dawson, 1998; Rioux et al., 2018). Thus, much effort has been placed on preventing or delaying the onset of drug use in order to reduce long-term drug problems (Chen, Storr & Anthony, 2009). However, delaying onset into adolescence is not a panacea since adult-onset drug use can also lead to problems. Moreover, research finds that some individuals who initiate drug use in adolescence experiment with drugs over a relatively short period of time, while others continue drug use well into adulthood and escalate to more addictive illegal substances, such as heroin (Kandel, Yamaguchi & Chen, 1992). Even when duration is taken into account, studies find those who begin use as adolescents develop substance use problems more quickly than those who initiate later (Grant & Dawson, 1998; Anthony & Petronis, 1995; Chen, Storr & Anthony, 2009). Thus, both onset and duration seem to be important dimensions of drug use for long-term drug outcomes; however, these dimensions have not been studied extensively for nondrug outcomes, among diverse populations, or following individuals long into adulthood.

Researchers have found that drug use, both initiated during adolescence and adulthood, predicts criminal offending over the life course (Green et al., 2010) and can hinder desistance (Schroeder et al., 2007). However, it is not clear how the age of onset and duration of drug use relate to crime across the life course. It is particularly important to study the link between the dimensions of both drug use and criminal careers among African Americans given the differences in patterns from Whites (Doherty & Ensminger, 2014; Doherty et al., 2008a).

With respect to drugs, adolescent drug experimentation is less common among African Americans than Whites with African American adolescents initiating drug use later (Watt et al., 2008; Evans-Polce, et al., 2015) and continuing drug use further into adulthood than Whites (French et al., 2002, Doherty et al., 2008a). Similarly, African Americans are more likely than Whites to continue offending later into adulthood (i.e., the 30s; Elliott, 1994; Doherty & Ensminger, 2014). Structural factors (e.g., race, structural disadvantage) drive criminal justice contact (e.g., Brame at al. 2014; Kirk, 2008) above and beyond behavior (Weaver, Papchristos, & Zanger-Tishler 2019) whereby African Americans have a higher probability of arrest with 49% of African American males and 18% of females arrested by

age 23, a rate that far surpasses Whites despite similar behavior (Brame et al., 2014). Further, African Americans are vastly overrepresented in prisons, with rates of incarceration nearly seven and three times the rate of white men and women, respectively (Guerino et al, 2011), despite similar behavior. Given racial differences in patterns and racial disproportionality in the criminal justice system, it is not clear if adolescent-onset drug use for African Americans represents the harbinger of later problems as seen with Whites, especially since few studies follow African Americans long enough to observe long-term impact.

Here we examine one way drug use onset may impact crime outcomes—duration. Earlier onset of substance use provides more years for criminal involvement that can thwart opportunities related to the aging out processes, such as education and employment (Stewart & Uggen, 2019; Pager, 2003). Moreover, those who initiate in adolescence may situate themselves in social networks that reinforce drug-using and criminal behaviors, leading to greater and longer involvement (Haynie & Kreager, 2013).

To increase our understanding of whether both onset and duration are independent risk factors for criminal justice system involvement, we examine official criminal record data in conjunction with interview data among a cohort of urban African Americans followed from ages 6–52. Our approach allows us to tease out (1) whether adolescent-onset drug use starts an individual on a path to criminal justice system involvement, even if the drug use is for a brief time, (2) if duration of drug use, regardless of the timing of onset, is what is driving later criminal involvement, or (3) if it is the combination of adolescent-onset and long duration of use that is particularly problematic. We focus on marijuana, cocaine, and heroin use because they were the three most frequently used illegal substances among this cohort and only in rare cases were additional substances used without using marijuana first (three individuals). Primary outcomes of interest are criminal career dimensions, including incarceration and arrests, including arrest type (drug, property, violence). We contrast crime models with drug use disorder models as associations of duration and onset with drug use disorders has been studied extensively.

2. Methods

2.1 Study Sample

The Woodlawn Study is an epidemiological, prospective study of a population of African American children who were all in first grade in Woodlawn, a neighborhood community on the southside of Chicago, in the 1966–67 school year (N=1,242; 636 females, 606 males; Kellam et al., 1975). This cohort has been followed longitudinally at four time points through mid-adulthood (ages 6, 16, 32, 42). We draw on information from the adult interviews, conducted in 1992–93 and 2002–03 when 952 and 833 of the living participants, respectively, were interviewed about social, psychological, and behavioral domains. In 2012, criminal histories were collected from the Illinois Criminal Justice Information Authority for the full cohort from ages 17–52, supplementing records collected in 1993 from the Chicago Police Department and the Federal Bureau of Investigation (FBI, Doherty & Ensminger, 2014).

This study assessed duration and onset of drug use among the 1,053 people who were interviewed at age 32 and/or age 42 (85% of the original cohort) and measured criminal arrest and incarceration among the 1,217 with complete criminal history information (98% of the original cohort). Attrition analyses comparing those who had at least one adult interview with those who were lost to follow-up in adulthood revealed no differences on key variables, such as gender, socioeconomic status, early childhood behavior, adolescent delinquency or drug use. However, those interviewed in adulthood were more likely to have graduated high school and less likely to have lived below the poverty level in first grade or adolescence. Interestingly, cohort members with a criminal record for a violent or drug-related crime were *more* likely to have an adult interview than not (Doherty, Green & Ensminger, 2008).

Analyses focus on a subsample of individuals who used one of three commonly used illegal substances, marijuana, cocaine, or heroin (n=626), and those with valid arrest data (n=1,217). Combining these numbers, 614 individuals had both used one of these drugs and had valid arrest data (58.3% of those with an adult assessment). Career length and arrest count are only analyzed among those with an arrest history (n=350).

2.2   Measures

2.2.1   Drug Use Measures—Drug use onset was based on questions asked in young adulthood and midlife about age of first and last use of marijuana, cocaine, and heroin (Anthony, Warner & Kessler, 1994). The age of onset measure represented when the respondent first used any of these three substances. The duration measure represented the number of years a person used marijuana, cocaine, and/or heroin. Among those who used drugs, we created a dichotomous variable of *onset*: adolescence (<17) and adult (17+) and a dichotomous *duration* measure of experimental use (1–5 years of use) and long-term use (>5 years). The vast majority of individuals initiated drug use by age 30 (99%) affording ample opportunity by age 42 to use long-term, regardless of onset timing. Thus, establishing the cutoff of 5 years for short-term versus long-term use mitigated the concern that individuals who initiated later in the life course might not have an opportunity to be labeled as an individual who used long-term.

Drug use disorder diagnosis was assessed in both adult interviews using the Michigan version of the Composite International Diagnostic Interview (CIDI-UM, Kessler et al., 1994) and represented a lifetime disorder. DSM-III-R criteria were used for the young adult interview, and DSM-IV criteria for midlife, combining abuse and dependence. Drug use disorders were assessed across any illegal substance, not limited to marijuana, cocaine, and/or heroin.

2.2.2.   Criminal Justice System Involvement Measures—In this study, we focused on arrests and incarceration. A person was considered *arrested* if he or she had an arrest record between the ages of 17–52 based on records from the Chicago Police Department and FBI (ages 17–32) and state of Illinois (ages 17–52; Doherty & Ensminger, 2014). *Arrest count* was a sum of all offenses (up to 3 charges per arrest) including violent (e.g., homicide, assault, rape, robbery) property (e.g., burglary, fraud), drug (e.g., possession,

manufacturing), and other (e.g., public order, weapons offenses). *Criminal career duration* was calculated based on age of first and last arrest. *Incarceration* information was drawn from the adult interviews where respondents reported having been incarcerated or were interviewed in jail/prison.

2.3 Analysis

We first estimated the relationship between drug use and crime using bivariate statistical techniques. We conducted sensitivity analyses to determine if patterns were similar for males and females and decided to combine males and females as associations were not appreciably different, and power was limited due to the focus on the subsample of those who used drugs (n=625). We then used regression models that control for gender, mother's education (an indicator of socioeconomic status), and childhood aggressive behavior. The cohort design controlled for age, race, and childhood neighborhood. Onset and duration were first tested as main effects in Step 1. In Step 2, multiplicative effects were assessed using an interaction term to test, for example, if the effects of onset only mattered for those with a long duration of use. In Step 3, we controlled for meeting criteria for a drug use disorder in the criminal justice system models. We used logistic regression for the outcomes of arrest (including arrest type – violent, property, drug crime), incarceration, and drug use disorders for the sample who used drugs (n=614) and negative binomial regression for the outcomes of arrest counts and career lengths for the subsample who had used drugs and had been arrested at least once (n=350).

3. Results

3.1 Descriptive Statistics

Among the analytic sample of those who had used marijuana, cocaine, and/or heroin (n=614), 51.8% used only one drug (usually marijuana), while 37.5% used two drugs (typically marijuana and cocaine), and 10.7% used all three substances. The average age of onset of marijuana was 16.6, 23.6 for cocaine and 25.3 for heroin.

Polysubstance use was highly associated with arrests, incarceration, and meeting criteria for a drug use disorder. Specifically, 48.4% of those who only used one substance, 60.0% of those who used two substances, and 89.4% of those who used all three substances were arrested (p<.001). Similarly, 15.7% of those who only used one substance, 37.0% of those who used two substances, and 69.7% of those who used all three substances had been incarcerated (p<.001). Further, 6.0% of those who only used one substance, 48.7% of those who used two substances, and 75.8% of those who used all three substances met criteria for a lifetime drug use disorder (p<.001).

As expected, adolescent-onset use was highly related to longer duration in this sample as shown in Table 1. We found that the most common pattern, almost half (47.9%) of those who used marijuana, cocaine, and/or heroin started in adolescence and used for more than five years (which we termed adolescent-onset, long-term use). However, onset and duration were also distinct dimensions in that a majority of both adolescent- and adult-onset users used for longer than 5 years, regardless of onset (76.5%). Further, 85.0% (294/346) of those

who initiated as adolescents continued to use for more than 5 years compared to 65.7% (176/268) of those who initiated as adults ($p<0.001$). Short-term adolescent-onset users (i.e., "experimenters") were the least common group, representing only 8.5% of the total analytic sample.

On average, the adolescent-onset experimenters began use around age 14.9 (range 12–16), similar to those in the adolescent long-term use group with a mean initiation age of 14.5 (range 7–16).[1] Adult-onset experimenters had a mean onset of 20.0 (range 17–40) while those in the adult-onset long-term group had a slightly younger mean age of onset of 19.7 (range 17–35).

With respect to crime, it is clear that this cohort was highly involved with the criminal justice system. Among the analytic sample of those who had used marijuana, cocaine, and/or heroin (n=614), 57.2% were arrested (73.4% of males, 39.2% of females).

3.2.   Bivariate Association of Onset and Duration with Drug and Crime Outcomes

Table 2 shows the interrelationships between drug use onset, duration, crime, and meeting criteria for a drug disorder. Those in the adolescent long-term drug use group were the most likely to be arrested, incarcerated, and meet criteria for a drug disorder followed closely by those in the adult long-term use group. In contrast, few experimenters experienced arrest, incarceration, or a drug disorder, regardless of onset. Groups differed with respect to criminal career length with adult experimenters having the shortest career followed by adolescent experimenters and those in the adolescent long-term use group having the longest career. While not statistically significant, the number of arrests followed a similar pattern.

3.2   Adjusted Regression Models

As shown in Table 3, duration (long-term use vs. experimenter) was a statistically significant predictor of arrest, incarceration, and career length in regression models that adjust for onset, gender, mother's education and childhood aggressive behavior. Those who used long-term had 2.3 times the risk of arrest ($p<0.001$) and 3.6 times the risk of incarceration ($p<0.001$). Among those with at least one arrest, long-term use predicted more arrests (Incidence Risk Ratio (IRR)=1.804, $p<0.001$) and longer criminal careers (IRR=1.551, $p=0.005$). Onset was not significantly related to any of the crime outcomes once duration was taken into account. Further, as shown in Step 2, there were no significant interactions between onset and duration on any of the outcomes. As shown in Step 3, controlling for meeting criteria for a drug use disorder reduced the magnitude of the associations of duration with criminal justice system involvement outcomes, though duration generally remained statistically significant for all outcomes; it only becomes marginally significant for career length ($p=.064$).

The results showed significant relationships between onset and duration for drug use disorders. Those who used long-term had 18.5 times the risk and those who onset in adolescence had 1.7 times the risk of meeting criteria for a drug use disorder compared to experimenters and those who onset in adulthood ($p<0.001$ and $p=0.011$, respectively).

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[1]Note only four individuals initiated use before age 10, which is how the World Health Organization defines the beginning of adolescence.

3.3 Regression Analyses by Crime Type

Sensitivity analyses by arrest type showed consistent findings with those in Table 3 (see Table 4). Those who used drugs long-term had 2.1 times the risk of arrest for a property crime, 2.3 times the risk of arrest for a violent crime, and 4.5 times the risk of arrest for a drug-related crime compared to experimenters (p's<0.01). The adolescent versus adult-onset interaction was not statistically significant in any of these models (data not shown).

3.4 Regression Analyses by Gender

Findings with regression models that assessed differential associations by gender were consistent with conclusions from models presented in Table 3. Neither gender by onset nor gender by duration interaction term was statistically significant in any model. Analyses stratified by gender showed no appreciable differences in the magnitude of the associations for males and females (data not shown).

4.   Discussion

4.1 Interpretation of Findings and Implications.

In line with a wide body of research, drug use is associated with criminal justice system involvement among African Americans (Rosich, 2007). Indeed, prior Woodlawn research that models the causal and reciprocal relationships between substance use and crime found strong evidence of an interrelationship between substance use, crime, and criminal justice system involvement (Doherty et al, 2016; Green et al., 2019). It is important to emphasize that broad contextual factors are driving both these factors (Weaver et al., 2019). To complement these studies, the current study sought to examine if adolescent onset and/or duration of drug use are important markers of later crime problems among this population.

In line with a wealth of literature (e.g., Anthony et al., 1995), our findings show that both onset and duration of drug use are related to meeting criteria for a drug disorder with a much stronger effect for duration (aOR=19.2) than onset (aOR=1.6), though some of the strength of this association may relate to drug dependence prolonging the course of drug use. Regardless, both seem to be important dimensions of drug use for this outcome, validating the use of onset as a way to identify individuals for drug intervention efforts (Rioux et al., 2018). In contrast, only duration is closely related to long-term negative crime outcomes with experimenters having less criminal justice involvement, regardless of onset. In adjusted models, duration predicted each of the crime outcomes, and this effect was not dependent upon onset as evidenced by the non-significant interaction models. This pattern held when examining crime types separately as well as when meeting criteria for a drug use disorder was controlled.

One explanation relates to the greater opportunity for both offending and police interactions among those with longer drug careers. As longer duration is highly tied to drug disorders generally and in this cohort and the magnitude of the association was reduced when drug use disorder was added to the model, criminal justice system involvement seems in part to be a direct function of drug problems, with those meeting criteria for a drug use disorder engaging more with the criminal justice system perhaps related to securing drugs,

associations with deviant peer networks, or greater involvement in drug dealing. If associations prove causal, findings suggest that shortening drug careers, regardless of onset, could impact criminal justice outcomes. Likely, interactions with the criminal justice system extend drug duration (Doherty, et al., 2016), thus emphasizing the critical need to utilize alternatives to arrest when possible. This implication may be particularly critical given the known negative consequences of criminal justice contact, on important life course outcomes including education (Stewart & Uggen, 2019), employment (Pager, 2003), and mental health (Sugie & Turney, 2017).

One criticism of previous studies investigating the drug-crime relationship in general populations is that they often include a limited number of people who engage in crime and drug use. A distinguishing feature of this analytic sample is the high rate of criminal activity. About three-fourth of the males and almost 40% of the females were arrested at least once with some having extensive criminal histories. With respect to drug use, while cohort members were not more likely to initiate drug use as adolescents compared to other adolescents in the US (Kellam et al., 1982), once initiated, more than 30% of those using drugs at earlier time points continued to use into their 40s (Doherty et al., 2008a), which is significantly longer than continuation patterns found in general populations assessed in similar times (Chen & Kandel, 1995). While the Woodlawn data are well-suited to study our research questions, they cannot speak to the generalizability of findings to other populations or time periods. Thus, it is important to examine these interrelationships in additional longitudinal cohorts and racial groups.

4.2 Limitations

It should be noted that misreporting of drug use ages of onset and termination is a potential limitation. However, this concern is somewhat mitigated by evidence showing the validity of self-reported substance use (Maisto et al, 1990; Harrison, 1995; Harrison, 1997) and a prior study among the Woodlawn cohort, which identified a high degree of consistency between prospective and retrospective reports (Ensminger et al., 2007). In addition, since the self-report measures and the official records come from different sources, their association gives further assurance that the self reports are meaningful. Another concern is attrition since drug reports were obtained for only 85% of the cohort. Finally, the observational design limits our ability to draw causal inferences.

4.3 Conclusion

This work suggests that while adolescent onset and longer duration are important markers for later drug problems for African Americans, a substantial number of individuals in this cohort began use at age 17 or older and still developed drug problems (33%). For criminal justice system involvement outcomes, it is this longer duration, not drug use onset, that seems to increase risk of involvement. Therefore, shortening drug trajectories for African Americans may have a greater impact on justice system involvement than delaying onset though structural factors, such as racial profiling, over-policing and differential sentencing, should not be ignored. Findings add to our understanding of intervention targets and is particularly important for African Americans who continue drug use and are embroiled in the criminal justice system well into adulthood. Future research should examine causal

mechanisms, such as lower social role participation among those with long drug trajectories, impact of arrests on prolonging drug use, and involvement in deviant social networks as a result of drug use, as well as differing associations by drug type to further understanding of the importance of various drug dimensions for African Americans' life course outcomes.

Acknowledgements:

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Highlights

- Drug onset and duration independently predicted meeting drug disorder criteria.

- Only duration predicted crime outcomes, including arrest and incarceration.

- Association held for all crime types (i.e., property, violence, and drug crimes).

- No interaction effects were observed between onset and duration.

Table 1:

Number and Percentage of Participants by Onset and Duration Category (N=614)

	Experimenter (1 to 5 years)	Long-Term User (> 5 years)	TOTAL
Adolescent Onset (<17)	52 (8.5%)	294 (47.9%)	346 (56.4%)
Adult Onset (17+)	92 (15.0%)	176 (28.7%)	268 (43.6%)
TOTAL	144 (23.5%)	470 (76.5%)	

χ^2=31.33, p<.001

Table 2:

Bivariate Relationship between Drug User Category with Criminal Justice Involvement and Drug Dependence

	Among Those Who Used Drugs (n=614)					
	Adolescent Experimenter (n=52)	Adolescent Long-Term (n=294)	Adult Experimenter (n=92)	Adult Long-Term (n=176)	Test Statistic	p-value
Percent Arrested[a]	38.5%	67.0%	35.9%	57.4%	χ^2=36.10	<0.001
Percent Incarcerated	13.5%	38.4%	8.7%	30.1%	χ^2=36.91	<0.001
Percent with a Drug Use Disorder[b]	3.8%	42.5%	2.2%	29.7%	n/a	n/a
	Among Those Who Used Drugs and Were Arrested (n=350)					
Mean Arrest Counts	7.05	10.50	5.09	11.14	F=1.99	0.116
Mean Career Length	13.40	16.46	8.39	15.05	F=5.56	0.001

[a]Due to conflicting information between official records and self-reports, the sample size for the arrest analyses is reduced from 625 to 614. See Doherty & Ensminger, 2014 for more details.

[b]Two cells had less than the five individuals required for a valid chi-square statistic.

Table 3:

Multiple Regression Examining the Interaction of Drug Onset and Duration as Predictors of Drug and Crime Outcomes

	Step 1			Step 2			Step 3		
Any Arrest (n=614)	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value
Long-Term User vs. Experimenter	2.309	1.512, 3.527	<0.001	1.877	1.078, 3.267	0.026	1.801	1.157, 2.803	.009
Adolescent vs. Adult Onset	1.209	0.840, 1.741	0.308	0.829	0.389, 1.768	0.628	1.157	0.799, 1.674	.439
Duration by Onset Interaction	--	--	--	1.634	0.690, 3.873	0.264	--	--	--
Drug Use Disorder	--	--	--	--	--	--	2.199	1.428, 3.386	<.001
Incarceration (n=614)	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value
Long-Term User vs. Experimenter	3.618	1.998, 6.551	<0.001	3.467	1.526, 7.879	0.003	2.222	1.195, 4.132	.012
Adolescent vs. Adult Onset	1.274	0.855, 1.900	0.234	1.180	0.387, 3.592	0.771	1.081	0.712, 1.642	.713
Duration by Onset Interaction	--	--	--	1.092	0.332, 3.597	0.884	--	--	--
Drug Use Disorder	--	--	--	--	--	--	3.901	2.536, 6.003	<.001
Career Length Among Arrested (n=350)	IRR	95% CI	p-value	IRR	95% CI	p-value	IRR	95% CI	p-value
Long-Term User vs. Experimenter	1.551	1.138, 2.114	0.005	1.870	1.235, 2.832	0.003	1.361	0.982, 1.885	.064
Adult vs. Adolescent Onset	1.111	0.886, 1.394	0.362	1.567	0.876, 2.830	0.130	1.087	0.864, 1.367	.478
Duration by Onset Interaction	--	--	--	0.665	0.353, 1.252	0.207	--	--	--
Drug Use Disorder	--	--	--	--	--	--	1.307	1.028, 1.661	.029
Arrest Counts Among Arrested (n=350)	IRR	95% CI	p-value	IRR	95% CI	p-value	Odds Ratio	95% CI	p-value
Long-Term User vs. Experimenter	1.804	1.308, 2.486	<0.001	2.251	1.466, 3.458	<0.001	1.440	1.028, 2.018	.034
Adult vs. Adolescent Onset	1.003	0.794, 1.266	0.982	1.525	0.825, 2.820	0.178	0.933	0.735, 1.184	.567
Duration by Onset Interaction	--	--	--	0.613	0.316, 1.187	0.147	--	--	--
Drug Use Disorder	--	--	--	--	--	--	1.593	1.246, 2.036	<.001
Drug Use Disorder (n=614)	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value	Odds Ratio	95% CI	p-value
Long-Term User vs. Experimenter	18.491	6.685, 51.149	<0.001	18.790	4.444, 79.440	<0.001	--	--	--
Adolescent vs. Adult Onset	1.670	1.124, 2.480	0.011	1.722	0.235, 12.634	0.593	--	--	--
Duration by Onset Interaction	--	--	--	0.968	0.127, 7.391	0.968	--	--	--

Note: IRR=incidence rate ratio. Analyses control for age, race, and childhood neighbourhood by design. Regression models adjust for gender, mother's education, and childhood aggressive behavior.

Table 4:

Association of Drug Use Onset and Duration with Crime Types (n=614)

	Odds Ratio	95% CI	p-value
Drug Arrest			
Long-Term User vs. Experimenter	4.488	2.438, 8.259	<0.001
Adolescent vs. Adult Onset	0.957	0.642, 1.427	0.830
Property Arrest			
Long-Term User vs. Experimenter	2.108	1.355, 3.290	0.001
Adolescent vs. Adult Onset	1.052	0.736, 1.504	0.779
Violent Arrest			
Long-Term User vs. Experimenter	2.289	1.398, 3.750	0.001
Adolescent vs. Adult Onset	1.400	0.958, 2.046	0.082

Note: Analyses control for age, race, and childhood neighborhood by design. Regression models adjust for gender, mother's education, and childhood aggressive behavior.

Drug arrests include manufacture/delivery, possession with intent to sell, possession of drugs, and possession of drug paraphernalia. Property arrests include home invasion, burglary, larceny/theft, arson, deceptive practices, possession, stolen property, criminal damage, and criminal trespass. Violent arrests included murder, assault/battery, robbery, domestic violence, armed violence, kidnapping, and unlawful restraint.