Serious juvenile offenders who have experienced emerging adulthood: Substance use and recidivism

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Abstract
Using data from the California Youth Authority, this article examines whether or not specific substance use differentially predicts recidivism for individual offense-type among a group of serious juvenile offenders who have experienced emerging adulthood. The results of the logistic regression analysis indicate that users of specific substances have a higher overall likelihood of receipt of a subsequent arrest for different offense-types when compared to other substances. Specifically, among the 524 serious juvenile offenders analyzed, one demographic, one social bond, and two substance use measures were significant indicators of an offender being arrested during the seven-year follow-up period. The social bond measure of full-time employment and substance use measure of using mind-altering drugs were significant indicators of receipt of an arrest for a non-violent offense, while being non-white and reported use of uppers/downers were significant predictors of arrest(s) for violent and both non-violent and violent offenses. Policy implications, limitations, and directions for future research are discussed.

1. Introduction

Over the past several decades, numerous efforts have been made to address youth offending. Substance use/abuse among juveniles, however, has arguably received the largest amount of legislative, public, and scholarly attention as such deviant behavior has proven to be widespread and predictive of future life outcomes. For 80% of juvenile offenders that come into contact with the juvenile justice system, substance use/abuse plays a role in their lawbreaking (National Center on Addiction and Substance Abuse at Columbia University, 2004). The use and abuse of alcohol and drugs also influence juvenile recidivism into adulthood (Howard, Balster, Cottler, Wu, & Vaughn, 2008; Snyder & Howard, 2015).

With juvenile incarceration costing approximately $5.7 billion each year and alcohol and drug treatment curriculums for youth offenders costing approximately $139 million each year, there is a fiscal need to address the problem of substance use/abuse among children and young adults in the United States (Justice Policy Institute, 2009; NCASACU, 2004). The financial burden is even more apparent when recognizing that many juvenile perpetrators continue to offend as they transition into adulthood, contributing to a significant, yet unknown, portion of the $68 billion each year in federal and state adult correctional budgets (Riordan & McDonald, 2009). In addition, with respect to the well-being of youth, there is a need to determine the types of substance use/abuse that more commonly lead to repeat lawbreaking, so as to concentrate treatment on the prevention of specific illicit substance use and abuse that cause the most harm. This is especially true given that incarceration often fails to deter juvenile delinquency and presents further challenges for many juvenile offenders (Holman & Ziedenberg, 2011; Mulvey, 2011). Thus, the purpose of the present study is to identify what specific types of drug use/abuse, if any, differentially predict future arrests among a particular group of juvenile offenders.

The connection between substance use/abuse among juvenile offenders has been heavily demonstrated in prior research (Anglin & Speckart, 1988; Elliott, Huizinga, & Menard, 1989; Inciardi, 1979; Nurco, Hanlon, & Balter, 1991; Speckart & Anglin, 1986). Life course theories of criminal behavior have been among the more popular theoretical perspectives utilized to test and confirm this connection (Cubbins & Klepinger, 2007; Hser, Hamilton, & Niv, 2009; Hser, Longshore, & Anglin, 2007; Ragan & Beaver, 2010; Schroeder, Giordano, & Cernkovich, 2007). Sampson and Laub's (1993) age-graded theory of informal social control posits that juvenile offenders who continue to engage in deviant behaviors - such as substance use/abuse - hinder their ability to engage in pro-social behaviors that could have the potential for the development of informal social control, thus disrupting an offender's ability to desist from crime.

A newer and largely unexplored area in criminological/criminal justice research is the distinctive period of the life course proposed by Arnett (2000, 2005, 2007), referred to as emerging adulthood. Specifically, this theory refers to a finite period of time - approximately between...
18 and 25 years of age — where youth in certain cultures go through distinct identity exploration/formation not found in any other age groups and in most other cultures (Arnett, 2000). As such, individuals in this phase may be more inclined to experiment with substances (e.g., alcohol, marijuana, cocaine, and heroin) as part of identity formation or to even relieve stress that results from such identity formation/exploration (Arnett, 2005). Consequently, juvenile offenders, especially serious, already known to have substance use/abuse issues may be more inclined to experiment or even become dependent upon various substances during this distinct period of the life course (Arnett, 2005). However, it is unknown what role, if any, specific substance use plays in serious juvenile offenders’ differential commission of individual crime-type as they experience emerging adulthood.

The present study examines what self-reported drug use among known serious juvenile offenders who have experienced emerging adulthood may differentially predict recidivism of individual offense-type. Specifically, this study will explore what explicit types of substances (i.e., alcohol, uppers/downers, mind-altering, and/or heroin) serious juvenile offenders reportedly use, and if such use differentially predicts arrest(s) for an individual offense-type (i.e., non-violent, violent, or both) as they experience emerging adulthood. This study can potentially result in a more comprehensive understanding of this distinct period of the life course of emerging adulthood for known serious juvenile offenders.

### 1.1. Substance use/abuse and juvenile offending

With most drug use beginning during one’s early teens, a focus in criminological and criminal justice research has been placed upon understanding the role of substance use/abuse in relation to juvenile offending; ultimately finding a strong link between the two (Anglin & Speckart, 1988; Anthony & Petronis, 1995; Chaiken & Chaiken, 1990; Elliott et al., 1989; Inciardi, 1979; Nurco et al., 1991; Yu & Wilford, 1992). Such focus on this connection has centered on the age of onset and the specific role of substance use/abuse in juvenile offending. Most substance use has been identified as beginning during adolescence with some studies suggesting that substance use at the age of 14 or younger places the juvenile in the most vulnerable position to continue using substances throughout their life course (Chen & Kandel, 1995). Further compounding this issue is that adolescence is the period of the life course where drug use is more likely to escalate to higher overall levels (Anthony & Petronis, 1995; Yu & Wilford, 1992). Therefore, not only do the majority of known substance/drug users begin using during adolescence, but they also may escalate to higher-levels of use throughout their life course when compared to users who begin in adulthood. Some studies have even placed the age range of highest prevalence of drug use at 18 to 25 with few individuals experimenting with new substances after the age of 25 (Bachman et al., 2002; Chen & Kandel, 1995; Substance Abuse and Mental Health Services Administration, 2004).

It has been estimated that as high as 78.4% of all teens who have contact with the juvenile justice system in some manner either tested positive for drugs, were under the influence of alcohol and/or drugs when they committed their arrested offense, were arrested for an alcohol or drug offense, admitted substance use/addiction issues, or some combination of each factor (NCASACU, 2004). Therefore, substance use/abuse plays some role in the vast majority of all juvenile offending. Moreover, 47% of 10 to 17-year olds that were arrested met or could have met the criteria for substance addiction according the standards of the DSM-IV (NCASACU, 2004). For individual offender-type, 72% of juvenile property offenders and 69.3% of juvenile violent offenders were involved with substance use/abuse to some degree (NCASACU, 2004). Consequently, this substance use/abuse can and often does continue into and throughout adulthood.

### 1.2. The life course

Although substance use and experimentation may be more likely to begin during adolescence, it does not mean that it concludes once adolescence ends. Engaging in drug use early in one’s lifetime has been referred to as the “drug use career” since it does not exist solely in one’s adolescence, but oftentimes extends throughout one’s entire life course (McLellan, Lewis, O’Brien, & Kleber, 2000). Whether one continues to engage in drug use or desists has been found to depend on various factors. Specifically, life circumstances, such as marriage and employment (i.e., social bonds), have been shown to influence desistance (Beaver, Wright, DeLisi, & Vaughn, 2008; King, Massoglia, & MacMillan, 2007; Laub, Nagin, & Sampson, 1998; Sampson & Laub, 1993, 2003). One study by Cubbins and Klepinger (2007) found that childhood family experiences and ethnic differences were also important for understanding the desistance process, as younger users became adults. For alcohol and drug use/abuse and its influence upon offending throughout the life course, Schroeder et al. (2007) found that drugs had a more substantial and longer overall lasting impact on one’s life course offending patterns than when compared to alcohol use/abuse.

For more than two decades, life course perspectives of criminal behavior, such as Moffitt’s (1993) adolescence-limited and life-course-persistent antisocial behavior and Sampson and Laub’s (1993) age-graded theory of informal social control, have become mainstream theoretical perspectives used to study criminal behavior throughout the life course. As such, this has resulted in a strong research foci pertaining to an offender’s tendency to persist to or desist from offending throughout their life (e.g., Hser et al., 2005; Tewa & Hser, 2010; Nagin, Farrington, & Moffitt, 1995). Moreover, much research has been conducted to understand the criminal life course of juvenile delinquents as they transition into adulthood. Such research has ranged from understanding the relationship between mental health issues and offending (e.g., Silver, 2006) to the life course criminal behaviors of boys transitioning into adulthood whose parents were incarcerated (e.g., Murray & Farrington, 2005). Furthermore, a life course perspective has been suggested as among the best theoretical perspectives to apply to understanding drug use and its connection to continued offending (Hser et al., 2009).

#### 1.2.1. Emerging adulthood

A relatively new proposition of the life course perspective introduced by Arnett (2000) is the need to understand a distinct period of the life course called emerging adulthood. This proposed distinct period of the life course is posited to have emerged in the second half of the twentieth century and applies to the approximate ages between 18 and 25 where individuals are not adolescents, yet not adults either. This period can even extend throughout the entire 20s, depending on the individual (Arnett, 2000). When individuals experience emerging adulthood, they are argued to face culture-specific challenges, such as distinct demographic, subjective, and identity exploration/formation issues not experienced by other age groups (Arnett, 2000). Particularly, cultures, such as the US, where adolescence is oftentimes extended due to high industrialization places individuals within this age-range in a precarious position of not being in a distinct, easily definable, category (e.g., child, teen, adult, etc.). Arnett (2000) further proposes that this period of the life course is characterized by the following five key features of: 1) age of identity explorations, 2) age of instability, 3) self-focused age of life, 4) age of feeling in-between, and 5) age of possibilities.

The first characteristic of the age of identity explorations refers to two components of identify development being love and work where individuals begin to experiment and experience each respective factor, ultimately forming a key part of their lifelong identity (Arnett, 2005). The second characteristic of the age of instability refers to the unpredictability often faced during this age range due to frequent changes in employment, romantic relationships, educational status, and even one’s place of residence (Arnett, 2005). The third characteristic of the self-focused
age refers to where these individuals that are not quite adults are largely removed from many social obligations and informal social controls; therefore, they have more time and purported need to focus on their selves to prepare for what they perceive as true adulthood. The fourth characteristic of the age of feeling in-between indicates a time of confusion where individuals cannot identify with being an adult, adolescent, or some other distinct identity. Additionally, traditional demographic markers of becoming an adult are gradual (e.g., attending/graduating college, marriage, having children, etc.) and can be experienced at different ages, or not at all. These gradual markers even have the potential to vary tremendously across different racial/ethnic groups (Arnett, 2005). The fifth and final characteristic of the age of possibilities refers to the 1) period where individuals can make substantial changes to their lives and 2) helpfulness for one’s future is at an all-time high (Arnett, 2005). All of these characteristics of emerging adulthood have important potential implications when one considers substance use/abuse throughout this key period of the life course.

Taking the above characteristics of emerging adulthood into consideration, the implications for substance use/abuse during this portion of the life course are substantial. Substances can be used as part of identity exploration for both experiences and to relieve stress from identity confusion, essentially acting as a form of escape (Arnett, 2005). These individuals may also use various substances to relieve feelings of sadness or depression due to the likely immense change that occurs during this timeframe. Furthermore, substance use (e.g., alcohol, marijuana, and heroine) can reduce informal social control being exerted upon these individuals by keeping social bonds from forming or impacting the quality of existing bonds. Lastly, juveniles may lack foresight of issues that can accompany substance use/abuse, such as finding/maintaining employment, addiction issues, and/or future offending (Arnett, 2005). As such, emerging adulthood is a crucial and distinct period of the life course where substance use/abuse can begin, remain, or even dramatically increase, especially when one considers known serious juvenile offenders who likely already have substance use/abuse issues and face additional stressors once leaving institutional care (NCASACU, 2004; Osgood, Foster, Flanagan, & Ruth, 2005).

Despite a wealth of research on substance use/abuse and its relationship to offending throughout the life course, there is a strong need for the study of substance use/abuse among known juvenile offenders as they experience emerging adulthood upon recidivism of varying offense-types. With serious juvenile offenders facing a higher proportion of severe penalties and incarceration since the “Get Tough” movement towards juvenile offending in the 1980s and early 1990s and incarceration among juveniles identified as a significant predictor of future offending in adulthood, then study of this particular offender population is crucial (Holman & Ziedenberg, 2011; Loughran et al., 2009; Mulvey, 2011). Further highlighting this need for study is that as high as 80% of violent juvenile offenders in some studies recidivate upon release from incarceration, while only 3.5% of juvenile offenders receive some form of substance use/abuse treatment (California Department of Corrections and Rehabilitation, 2010; NCASACU, 2004; OJJDP, 2006; Trulson, Marquart, Mullings, & Caeti, 2005). Therefore, any information gained on the differential influence of specific substance use upon recidivism of offense-types will help with the development of more effective and efficient intervention/treatment initiatives. Such study will also help direct efforts to more effectively address these issues at an earlier age, thus potentially reducing the hundreds of thousands processed through the juvenile and adult correctional systems each year in addition to reducing the $5.7 billion juvenile and $68 billion adult annual correctional costs throughout the US (Justice Policy Institute, 2009; Riordan & McDonald, 2009).

1.3. The present study

A review of the relevant literature pertaining to juvenile offenders suggests that substance use/abuse plays a role in these offenders continuing to offend throughout their life course. Furthermore, as suggested by Arnett (2000, 2005, 2007) a distinct, largely unexplored, period of the life course referred to as emerging adulthood (i.e., approximately between 18 and 25 years of age) is where offenders make pivotal decisions whether to desist from or persist to use/abuse various substances, thus having the potential to influence continuance/desistance of criminal behavior(s) into adulthood. Despite the importance of understanding the impact of substance use/abuse upon offending among this particular population in this distinct phase of the life course, little research has been conducted, especially among individuals who are known serious juvenile offenders transitioning into adulthood. The goal of the present study is to identify what, if any, specific substance use has an influence on the commission of non-violent, violent, and both non-violent/violent offenses as known serious juvenile offenders experienced emerging adulthood. Findings from this study will assist juvenile/adult corrections practitioners and scholars better understand the specific influence(s) of individual substance use/abuse that needs to be taken into consideration when developing offender treatment, intervention, and prevention measures better suited for this specific offender population, ultimately having the potential to reduce costs associated with processing and housing these offenders throughout their life course.

2. Methods

2.1. Data

The target population for this study included serious1 juvenile male offenders who were released from custody of the California Youth Authority (CYA) in the state of California between 1965 and 1984. Data for the present study was available on the Interuniversity Consortium for Political and Social Research (ICPSR) website. Included in the data were inmate demographics (i.e., age and race), social bonds (i.e., marriage and employment status), total number of arrests after release from CYA custody, offense-type of subsequent arrest(s) (if applicable), and self-reported individual substance use (i.e., alcohol, heroin, uppers/downers, and mind-altering drugs).

2.2. Sample

The sample consisted of 524 juvenile male offenders released from incarceration between 1965 and 1984. Most offenders were released during their late teens or early twenties. Offenders were also identified as having been serious juvenile offenders. All 524 offenders were off parole and surveyed once per year for seven full years. For example, an offender released at age 19 was followed until the age of 27, whereas an offender released at age 17 was followed until age 25.

Upon release, the sample consisted of an age range from 16 to 22 with a mean age of 18.8 and a mode of 18. Conversely, the seventh and final study year was offenders who ranged in age from 22 to 28 with a mean age of 24.8 and a mode of 24. For race/ethnicity, the sample was evenly split with non-white at 51.5% (n = 270) and the remaining 48.5% (n = 254) being white.2 Over half of the sample (55.7%; n = 292) reported being married at some point. The majority of offenders (53.1%; n = 278) reported not having a full-time job at any point during the seven years with 46.9% (n = 246) reported full-time employment at some point. No indications of bias or significant skew were present in the characteristics of the sample.

1 Serious juvenile offenders are defined as those that have engaged in the more severe forms of non-violent (e.g., burglary and grand theft auto) and violent (e.g., rape, aggravat- ed assault, and robbery) lawbreaking. These do not include offenders who committed minor non-violent crimes (e.g., vandalism and loitering), and minor forms of violent crime (e.g., simple assault).

2 Percentages for specific race/ethnicity characteristics could not be reported as these measures were masked in the ICPSR dataset.
### Table 1
Descriptive statistics for measures used in present study.

<table>
<thead>
<tr>
<th>Measure</th>
<th>%</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Age upon release</td>
<td>18.82</td>
<td>1.07</td>
<td></td>
</tr>
<tr>
<td>Age at conclusion</td>
<td>24.82</td>
<td>1.07</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>White</td>
<td>48.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>51.5</td>
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<td></td>
</tr>
<tr>
<td>Marital status</td>
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</tr>
<tr>
<td>Married at some point</td>
<td>44.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single, never married</td>
<td>55.7</td>
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<tr>
<td>Employment status</td>
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</tr>
<tr>
<td>Full-time</td>
<td>46.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part-time/unemployed</td>
<td>53.1</td>
<td></td>
<td></td>
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<tr>
<td>Whether or not an offender reported substance/drug-use</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34.2</td>
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</tr>
<tr>
<td>No</td>
<td>65.8</td>
<td></td>
<td></td>
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<tr>
<td>Heroin</td>
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</tr>
<tr>
<td>Yes</td>
<td>47.1</td>
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</tr>
<tr>
<td>No</td>
<td>52.9</td>
<td></td>
<td></td>
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<tr>
<td>Uppers/downers</td>
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<td></td>
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<tr>
<td>Yes</td>
<td>45.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>54.8</td>
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<tr>
<td>Mind-altering</td>
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<tr>
<td>Yes</td>
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</tr>
<tr>
<td>No</td>
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<td>Recidivism</td>
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<tr>
<td>Non-violent</td>
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</tr>
<tr>
<td>Yes</td>
<td>97.1</td>
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<td>No</td>
<td>2.9</td>
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<td>Violent</td>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
<td>27.7</td>
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<td>Yes</td>
<td>70.2</td>
<td></td>
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<tr>
<td>No</td>
<td>29.8</td>
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</tbody>
</table>

n = 524.

3. Measures

3.1. Dependent measures

Three different models with three respective dependent measures were used in the analysis. The three models utilized are as follows; 1) whether or not an offender was arrested for a non-violent offense, 2) whether or not an offender was arrested for a violent offense, and 3) whether or not an offender was arrested for both non-violent and violent offenses. Table 1 shows the descriptive statistics of measures used in the present study. The measure of arrest for a non-violent offense was a dichotomous measure that distinguished between inmates with zero arrests and one or more arrests for a non-violent offense within the seven-year follow-up period. In the sample, fully 97.1% (n = 509) of offenders received at least one non-violent offense arrest (coded as 1) with the remaining 2.9% (n = 15) not having been arrested for a non-violent offense (coded as 0). Although a high percentage, this is not surprising given this sample of serious juvenile delinquents were followed for seven years, as is found in other studies with similar populations and even shorter follow-up periods (CDCR, 2010; Ryan, Abrams, & Huang, 2014; Trulson et al., 2005).

The second dependent variable - whether or not an offender was arrested for any violent offense - was also a dichotomous measure that distinguished between inmates with zero and one or more arrests for a violent offense(s) during the seven-year follow-up period. In the sample, 72.3% (n = 379) of offenders received at least one arrest for a violent offense (coded as 1). The remaining 27.7% (n = 145) of offenders were not arrested for a violent offense within the seven-year post-parole follow-up period (coded as 0).

The third dependent variable - whether or not an offender was arrested for both a non-violent and violent offense - was likewise a dichotomized measure that distinguished between inmates with zero arrest(s) or only one offense-type arrest (coded as 0) and those with an arrest(s) for both non-violent and violent offenses (coded as 1). Fully 70.2% (n = 368) were arrested for both non-violent and violent offenses with the remaining 29.8% (n = 156) having not been arrested at all or only arrested for either a non-violent/violent offense, not both.

3.2. Independent measures

Independent variables assessed one offender demographic characteristic, two social bond measures, and four substance use measures.

3.3. Demographic characteristic

Only one demographic characteristic of offender’s race was included in the models. The variable of offender race was dichotomized with non-white at 51.5% (n = 270) (coded as 1) with the remaining 48.5% (n = 254) being white (coded as 0).

3.4. Social bond measures

There were two measures for social bonds included: marital and employment status. The measure for offender’s marital status was a dichotomous measure with 44.3% (n = 232) of offenders reported being married at some point during the seven-year post-parole period (coded as 1) while the majority (55.7%; n = 292) reported never being married during the same period (coded as 0). Full-time employment status was measured as reporting full-time employment (i.e., 40 or more hours per week) at any point during the seven-year period (coded as 1) and not being employed full-time at any point during the seven years (coded as 0). Fully 53.1% (n = 278) of offenders were not employed full-time at any point during the seven-year period (coded as 0), while the remaining 46.9% (n = 246) reported being employed full-time at least once (coded as 1).

3.5. Substance use measures

There were four total measures used for offender substance use during the seven-year period. The first measure of alcohol use was a dichotomized measure of offenders who reported the use of alcohol (coded as 1) and those who reported not using any alcohol during each follow-up period (coded as 0). Fully 65.8% (n = 345) of the sample reported not using alcohol at any point during the period of concern. The second measure, heroin-use, was also a dichotomized measure with 47.1% (n = 247) who reported using heroin at one point during the seven years (coded as 1) with the remaining 52.9% (n = 277) reporting not using heroin at any point (coded as 0) during the same period. The third dichotomized measure of substance use was reported use of uppers and downers (e.g., cocaine). Fully 54.8% (n = 287) reported not having used uppers/downers (coded as 0) while 45.2% (n = 237) did report using uppers/downers (e.g., cocaine). Fully 54.8% (n = 287) reported not having used uppers/downers (coded as 0) while 45.2% (n = 237) did report using uppers/downers (e.g., cocaine). Fully 54.8% (n = 287) reported not having used uppers/downers (coded as 0) while 45.2% (n = 237) did report using uppers/downers (e.g., cocaine).

3 Non-violent offenses included receiving stolen property, grand theft, grand theft auto, forgery, and burglary.

4 Violent offenses included homicide, rape, and aggravated assault.

5 The measure of non-white includes African-American, Hispanic, Asian, and other.
demographic characteristic of offender race and one substance use measure of uppers/dowers. Offenders who were non-white were 3.083 times more likely than white offenders to report being arrested for a violent offense during the seven-year study period. The substance use measure related to offending for being arrested for a violent offense was different than that of a non-violent offense. Specifically, offenders who reported using uppers/dowers at least once during the seven-year study period had an 85% (Exp(B) = 1.851) higher overall likelihood of being arrested for a violent offense when compared to offenders who did not report using uppers/dowers.

Table 4 presents the findings for the logistic regression analysis for the third and final model with the dependent measure of an offender’s arrest for both a non-violent and violent offense during the seven-year study period. As with the second model of violent offending, the same two variables were found as statistically significant predictors of an offender being arrested for both a non-violent and violent offense. For offender race, non-white offenders had a 204% (Exp(B) = 3.041) higher overall likelihood of being arrested for both a non-violent and violent offense than when compared to white offenders. Interestingly, for substance use, offenders who reported using uppers/dowers remained as a significant predictor having a 65.5% (Exp(B) = 1.655) higher overall likelihood of being arrested for both a non-violent and violent offense than offenders who did not report using uppers/dowers – a slightly lower – yet still significant indicator as in the second model.

5. Discussion

The purpose of this study was to identify what specific substance use, if any, is predictive of an arrest for an individual offense-type among known serious juvenile offenders as they experienced emerging adulthood. Through logistic regression, this research identified that demographic, social bond, and substance use measures were significant predictors for having recidivated when this population experienced emerging adulthood. Furthermore, data revealed that differences exist in what indicators – demographic, social bond, and substance use – are significant predictors of future recidivism per individual offense-type.
(i.e., non-violent, violent, and both). For non-violent recidivism, the social bond indicator of holding a full-time job at least once during the period of concern and substance use measure of mind-altering drugs were predictive of receipt for an arrest(s). However, for receipt of solely a violent offense arrest(s) and both non-violent/violent offense arrests, the demographic indicator of race (i.e., non-white) and substance use measure of uppers/downers were the only significant indicators of receiving an arrest(s) for these offense-types. The results of this study provide insights into specific substance use and recidivism for individual offense-type among serious juvenile offenders who experienced emerging adulthood, both confirm and differ from prior literature, and suggest directions for future research.

Examination of the relationship between individual substance use and those who received a subsequent arrest(s) for a non-violent offense revealed that one social bond measure of full-time employment and one substance use measure of mind-altering drugs were significant predictors of an offender recidivating for a non-violent offense. All remaining demographic, social bond, and substance use measures were not significant predictors of receiving an arrest(s) for a non-violent offense.

Although one having employment is viewed through Sampson and Laub's (1993) age-graded theory of informal social control as a positive for offenders that potentially can alter their criminal trajectory throughout their life course, findings from the present study suggest that those who do obtain full-time employment at some point have a higher overall likelihood of being arrested for a non-violent offense than those who did not. From an emerging adulthood perspective of the life course, this may suggest that known serious juvenile offenders who experience emerging adulthood may go through struggles finding employment to meet one's optimism as part of this age range. Perhaps further compounding this issue is that such jobs are low paying, provide opportunities to steal to supplement one's income, or even indirectly support one's drug habit. The latter two being commonly proposed elements of the drug-crime cycle suggested in prior research (Goldstein, 1985; White & Gorman, 2000).

Prior studies have also found that employment for known criminal offenders 26 years old and under did not reduce their overall delinquency, a finding supported in the present study (Staff & Uggen, 2003; Wright, Cullen, & Williams, 1997). Furthermore, it may be what has been proposed in a number of other studies that it is not necessarily that an individual is employed, but that the employment is of sufficient quality, either the job itself or the bonds with co-workers (Allan & Steffensmeier, 1989; Shover, 1996; Wright & Cullen, 2004). Future studies should examine an offender's perceived quality of employment and co-workers in relation to offending using an emerging adulthood lens as a framework for better understanding this phenomenon.

For specific substance use as a significant predictor of receipt of a non-violent arrest in emerging adulthood, reported use of mind-altering drugs (e.g., LSD) was the only significant indicator for substance use. All other substance use measures of alcohol, heroin, and uppers/downers were not found to be a significant indicator for receiving a non-violent arrest. Although mind-altering is a broad term that now encompasses a multitude of drugs, this term in the present study primarily referenced LSD (lysergic acid diethylamide).

Research on the relationship between LSD and offending has been limited (see Bennett & Holloway, 2006; Chen, 2009). However, this finding supports a prior study by Bennett and Holloway (2006) that LSD, ecstasy, and amphetamine users were among the most likely of all drug users to report using proceeds from their crime to buy such drugs for pleasure, although not serving as the sole motivation to commit the crime. Furthermore, users of LSD and other mind-altering drugs believe that their drug use impaired their judgment, thus influencing their proclivity to offend (Bennett & Holloway, 2006). It may be that known serious juvenile offenders are experiencing stress as a result of their identity exploration/formation as part of emerging adulthood, and commit non-violent - mostly property - offenses in order to obtain the means for mind-altering drugs as a form of escapism. Future research should examine specific pharmacological affects of mind-altering drugs on judgment impairment in addition to the relationship between specific stressors experienced from issues related to emerging adulthood and subsequent substance use.

Through examination of the relationship between individual substance use and a violent offense arrest(s) revealed that one demographic indicator of race (i.e., non-white) and one substance use indicator of uppers/downers were significant predictors of being arrested for a violent offense. Non-white (i.e., African-American, Hispanic, Asian, and other) serious juvenile offenders who experienced emerging adulthood had a higher overall likelihood of being arrested for a violent offense during this time than when compared to Caucasian offenders. Excluding Asian offenders, this is a finding echoed in prior research (McNulty & Bellair, 2003). From an emerging adulthood lens of the life course, it may be that non-white offenders have lower-levels of optimism in regards to their own future, employment, romance, and other prospects of their life as minority youth, in general, have been found to have in prior research (Vacek, Coyle, & Vera, 2010). As such, they may see their future employment prospects as dim, out of reach, or altogether unrealistic as they progress through this unique period of the life course. Additionally, they may be more inclined to engage in violent behavior to achieve whatever means with the lack of informal social control present to limit or altogether restrict such behavior. Consequently, continued arrests - especially for violent - may serve as another barrier for finding/maintaining employment, ultimately leading to a continued cycle of offending to survive, obtain substances, and/or the means to purchase such substances.

Reported use of uppers/downers was also found to be a significant predictor of being arrested for a violent offense and both a non-violent and violent offense. No other substances were identified as being significant predictors of being arrested for a violent and both non-violent and violent offense(s). This is in opposition to prior research that has identified a strong connection between heavy alcoholic drinking and violence (Fagan, Hansen, & Yang, 1983; McNaughton Reyes, Foshee, Bauer, & Ennett, 2014; Putninš, 2003; Zhang, Wieczorek, & Welte, 1997). However, this does support findings from Schroeder et al. (2007) that drug-use over alcohol-use/abuse has a more sustained impact on one's offending throughout their life course. Although uppers and downers were combined in the present study, each can represent a vast array of drugs respectively having varied properties that can potentially impact violent offending. For uppers, generally, these are stimulants that impact basic processes of the body in order to keep the body alive, such as body temperature, breathing, and the pleasure/reward center of the brain (Inaba, Cohen, von Radics, & Cholewa, 2011). As such, there is typically a higher risk for both addiction and abuse of uppers, particularly for cocaine (Inaba et al., 2011).

For downers, they similarly impact various processes of the body, resulting in disinhibiting one's emotions and general impulses (Inaba et al., 2011). Therefore, non-white users of uppers/downers may be more inclined to truly be dependent upon their substance use, as opposed to use of mind-altering drugs for non-violent, and resort to violence in order to obtain drugs. Additionally, the combined use of downers may lower many inhibitions of committing a crime, thus increasing the proclivity for a crime - especially violent - to occur. This may particularly be the case since dependence upon uppers/downers has been shown to be linked with aggression as the result of craving the drug with aggression being a key identified characteristic in prior research seen as crucial for understanding the connection between substance use and violence (Chaiken & Chaiken, 1990; Denison, Paredes, & Booth, 1997; Dhossche & Rubinstein, 1997; Loeber, 1988; Roozen, van der Kroft, van Marle, & Franken, 2011; White & Hansell, 1998).

Aggression has long been linked as both a master and intervening characteristic explaining the relationship between certain drug-use and violent behavior (Chaiken & Chaiken, 1990; Denison et al., 1997; Dhossche & Rubinstein, 1997; Loeber, 1988; Roozen et al., 2011;
White & Hansell, 1998). Prior research has suggested that greater overall exposure to violence early on in one’s life, as minority youth have a greater overall likelihood of exposure than Caucasian youth, leads to an increased overall likelihood of both substance use and aggressive behavior (Gorman-Smith & Tolan, 1998; Guerra, Rowell Huesmann, & Spindler, 2003; Farrell & Sullivan, 2004; Sullivan, Kung, & Farrell, 2004; White, 1990). Prior research has also suggested that if adolescents engage in upper/downers use, such as cocaine, then it can disrupt serotonin levels, ultimately influencing aggressive responses that can escalate during withdrawal of such drug-use (Denison et al., 1997; Dhosse & Rubinstein, 1997; Moeller et al., 1994; White & Hansell, 1998). This behavior can even continue into adulthood (Farrington, 1995; Kaplan & Damphousse, 1995; Kandel, Davies, Karus, & Yamaguchi, 1986). Violence associated with hard drug-use, such as upper/downers, has also been attributed to violence inherent in the drug trade (Fagan & Chin, 1990; van Kammen & Loebner, 1994). Regardless of the causal mechanisms between drug-use and crime and even aggression, those who use drugs are more likely than those who do not to be both perpetrators and victims of violence (Carpenter, Glassner, Johnson, & Loughlin, 1988; Elliott et al., 1989; Osgood, 1994). For perpetrators, this relationship is supported from the findings in the present study.

From an emerging adulthood perspective, non-white serious juvenile offenders may be at the lower-end of optimism for their future. Consequently, the period between approximately 18 and 25 focused on identity exploration, instability, self-focus, feelings of being in-between, and hopefulness for future prospects may be differentially experienced by non-whites, as suggested by Arnett (2005). Further complicating this issue is that racial/ethnic minorities are more likely to be exposed to violence, particularly community-level violence, at a young age, which may increase aggression, increase substance use/abuse, or both (Buka, Stichick, Birdthistle, & Earls, 2001; Cooley-Strickland et al., 2009; Gorman-Smith & Tolan, 1998). Therefore, non-white serious juvenile offenders who already have a higher proclivity to become offenders into adulthood may rely on substance use/abuse of harder substances during emerging adulthood as the result of stress due to identity formation/exploration, decreased optimism for the future, or a combination of the two. Moreover, hard drugs that may have been used in the past to escape may, in themselves, cause more aggression. As such, increased likelihood for violent offending may occur. Additionally, since current and future employment prospects may be viewed as low, then such offenders may be more inclined to engage in non-violent offending as well to fund their drug use. Future studies should explore the interaction among factors related to emerging adulthood in how stress from identity exploration/formation during this distinct period of the life course is related to substance use/abuse and its impact upon offending, especially for non-white offenders.

There are two key policy implications of the present study. The first implication is that there should be more focus on providing substance use and abuse treatment to all juvenile offenders who come into contact with the juvenile justice system. With such a high proportion of juvenile offenders who come into contact with the juvenile justice system reportedly facing issues related to substance use/abuse, then treating individuals facing such matters early on may prevent them from escalating their substance use as they continue through adolescence and once they experience emerging adulthood. Specific emphasis should be placed upon non-white juvenile offenders as they are more likely to have witnessed violence early on in their life, use harder drugs, have greater overall tendencies for aggressive behavior(s), and are more likely to commit both non-violent and violent offenses.

The second policy implication is that stress management techniques should also be emphasized in juvenile justice programming. As individuals experience emerging adulthood and face stress from identity exploration/formation and all other associated changes, then stress management techniques that do not involve substance use may help curb related offending for all offenders. Referring offenders to substance use/addiction programs and related support groups, such as Alcoholics Anonymous and Narcotics Anonymous, could also prove beneficial.

Even though this study has provided useful information for known serious juvenile offenders who have experienced emerging adulthood, the research is not without limitations. Since the data utilized a sample of serious male juvenile offenders from 1965 to 1984, decade-specific drug trends (e.g., LSD) could have consisted of a higher proportion of reported drug-use for that particular category than presently exists. However, the data still provided the rare opportunity to analyze the relationship between substance use/abuse types and specific forms of recidivism among juveniles. Future research should utilize more recent data to examine any change in decade-specific drug use trends and its influence upon offending. Additionally, both the quality and depth of social bonds (i.e., employment and marriage) were not available in the current data; therefore, each could not be controlled for in regards to their impact upon recidivism as is shown to be important in prior studies (e.g., Allan & Steffensmeier, 1989; Laub et al., 1998; Shover, 1996; Wright & Cullen, 2004). Also, due to limitations within the dataset, specific drug use (e.g., LSD, cocaine, marijuana, etc.) and its predictive influence upon receipt of arrest for individual offense-type could not be parsed-out in the current study with such data being masked in general categories in the available dataset. Furthermore, findings from this study cannot be generalized to all serious juvenile offenders experiencing emerging adulthood, as cultural and racial/ethnic differences that may be location specific could not be taken into consideration, as suggested by Arnett (2000, 2005, 2007).

Though there are various causal explanations of the relationship between drug use and criminal offending, it is clear from the present study that those who engage in particular drug use are more likely than others to be arrested for a specific offense-type when experiencing emerging adulthood. Every effort should be made for early substance use/abuse treatment and stress management techniques to be provided for known serious juvenile offenders. Such early intervention methods not only have the potential for altering one’s criminal proclivity throughout their life course, but may also have the potential for reducing costs associated with processing, housing, and treating these offenders as they experience emerging adulthood and ultimately transition into adulthood. As such, known serious juvenile offenders who report or test positive for particular substance both prior to and when experiencing emerging adulthood should be directed towards necessary programming (e.g., substance use, stress management, etc.), regardless of the causal mechanism. At the very least, recognized use - through testing or self-reporting - of a particular substance should serve as a proxy for identifying offenders who need necessary treatment services, especially when experiencing substantial life changes and related stresses associated with the distinct and important period of the life course of emerging adulthood.

References


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