Why They Did It? Sex Differences in the Impact of Mental Health and Substance Use on Motivations for Offending

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Abstract

This study examined how mental health issues and substance use relate to motivations for offending among a large sample of adjudicated youth who completed a community-based placement in a large southeastern state ($n = 18,749$). The extent to which these relationships differed by sex was also considered. Multinomial logistic regression models revealed that although both mental health issues and substance use were related to a variety of reasons for offending, these relationships differed and did not appear to influence one another. In addition, findings revealed that mental health issues and substance use have differential effects on reasons for offending across sex. Treatment implications are highlighted along with suggestions for future research.

Keywords

motivations for offending, mental health issues, substance use, sex

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Introduction

The Substance Abuse and Mental Health Services Administration (SAMHSA) defines a “serious mental health illness” (SMI) as a diagnosable mental, behavioral, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities. SMIs are comprised of major depression, schizophrenia, bipolar disorders, and other mood and mental health diagnoses. Persons with SMIs are more likely to be unemployed and/or face inadequate housing compared with those without mental illness (SAMHSA, 2016). The links between SMIs and anti-social behavior, including criminal offending, have been well established (see, for example, Constantine, Andel, Robst, & Givens, 2013; Inciardi, Horowitz, & Pottier, 1993).

Mental illnesses have been found to be prevalent among justice-involved individuals and also to have exacerbating effects on one’s offending (Fox, Kanary, & Shepler, 2014; National Institute of Mental Health [NIMH], 2016; Teplin et al., 2006). Research shows that justice system-involved youth are more likely than general population youth to suffer from at least one mental health issue (Abram et al., 2004) and studies indicate that juvenile offenders with mental illness are at a significantly higher risk of recidivism than their peers without mental illness (Prins & Draper, 2009; Skeem, Winter, Kennealy, Louden, & Tatar, 2013).

Of further concern, youth with mental illness are more likely to use and abuse substances than their non-mentally-ill peers; specifically, 43% of youth receiving services for mental illness were diagnosed with co-occurring substance use disorders (SUDs; Fox et al., 2014). Unfortunately, youth in need of treatment and rehabilitation for SUDs are an underserved clinical population (Lyons, Baerer, Quigley, Erlich, & Griffin, 2001) who have also been shown to be at an elevated risk of reoffending (Cottle, Lee, & Heilbrun, 2001).

An often-overlooked area of research is the interrelationships of these mental health issues and substance use as risk factors for offending, and especially their relationship to motivations for offending. Previous research related to motivations for offending has identified a few possible interrelationships, principally individual personality traits and peer social influences (Agnew, 1990; Farrington, 1986; Moffitt, 1993). With regard to personality traits, those with antisocial personality traits tend to explain their offending more in terms of financial gain and excitement than those without such traits (Gudjonsson & Sigurdsson, 2004). Individuals diagnosed with a substance dependence disorder were more likely to cite a financial motivation for offending than those without such a disorder (Gudjonsson, Wells, & Young, 2011). Zajac, Sheidow, and Davis (2015) described mental health issues and

substance abuse as the “perfect storm” when referring to youth who were transitioning to adulthood. Zajac et al. (2015) suggested that this combination was particularly salient with youth based on the intersectionality of their transitional age, developmental level, involvement in the juvenile justice system, and their mental health needs.

Herein, we seek to expand on prior work documenting offender motivations by exploring the interrelationships between mental health and substance use in a sample of youth transitioning to adulthood. We focus specifically on several self-reported motivations for offending that have also been identified in prior research (Katz, 1988; Kruttschnitt & Carbone-Lopez, 2006; J. Miller, 1998; West & Farrington, 1977; Wright & Decker, 1997), namely, (a) anger/revenge; (b) impulse; (c) sexual desire; (d) money or material gain; (e) excitement, amusement, or fun; and (f) peer status or attention. As prior research has yielded mixed findings regarding variability in the reasons to offend across gender (Agnew, 1990; Brookman, Mullins, Bennett, & Wright, 2007; Kruttschnitt, 2013; J. Miller, 1998), we also explore potential sex differences in these relationships. The intersection of risk factors and motivations to offend is rarely considered, particularly in large samples, such as the one utilized here (see El Sayed et al., 2016; Mulvey, Schubert, & Chassin, 2010; Schubert, Mulvey, & Glasheen, 2011). Furthermore, we focus on the transition from adolescence to adulthood, as it is this stage in the life course when many criminal careers end and a smaller number continue (Blumstein, Cohen, Roth, & Visher, 1986; A. R. Piquero, Farrington, & Blumstein, 2003). The identification of risk factors associated with offending and persistence may potentially allow for the targeting of those risk factors through intervention and treatment programs.

Prior to presenting and discussing the results of our study, we offer an overview of the literature concerned with possible motivations for offending. This discussion includes potential gender differences within these motives as well as how mental health and substance use issues may influence reasons for offending.

Sex Differences in Offending Motivations

Whereas early criminological theories included motivations in their explanations for offending (Cohen, 1955; W. B. Miller, 1958; Wolfgang & Ferracuti, 1967), less attention has been given to this issue in recent years (for exceptions, see Brookman et al., 2007; Farrington, 1986, 1993; Katz, 1988; Kruttschnitt & Carbone-Lopez, 2006; J. Miller, 1998; Steffensmeier & Allan, 1996; Wright & Decker, 1994). The inattention to offending motivations has left an unfortunate gap given its potential relevance for treatment

intervention (Farrington, 1993). For instance, if more offenders are driven by utilitarian motives, then programs could be put in place to help meet those needs legitimately. On this score, qualitative research has revealed that burglars tend to report monetary gain as their exclusive purpose for offending (Palmer, Holmes, & Hollin, 2002; Wright & Decker, 1994). On the contrary, if emotions and the “seductions of crime” (Katz, 1988) are found to be important motivations for offending, then this suggests that some offenders may not be acting as rationally as others, at least within contemporary conceptions of rational choice theory (see A. R. Piquero, Paternoster, Pogarsky, & Loughran, 2011). Regardless, intervention strategies would be aided by identifying and addressing motivations for offending (Agnew, 1990; Wattanaporn & Holtfreter, 2014).

Though offending motivations are often not a key feature of any formal criminological frameworks *per se*, one exception was offered by Farrington (1986) in his seminal discussion of motivations to offend and male delinquency. He presented offending as the outcome of a four-step process. The first step included motivational factors that were involved when an individual desired certain possessions or an outlet for his or her emotions such as excitement. Second, the individual then selected either legal or illegal methods to satisfy that desire. Third, the individual’s motive could be amplified or diminished by his or her internalized beliefs and attitudes about crime. Finally, the individual’s situational and opportunity risk factors would then interact with these other conditions whereby, Farrington argued, criminal behavior is the end product of a rational decision-making process in which the individual weighs the perceived costs and benefits.

Prior research has found that motivations for engaging in crime vary across individuals. For instance, West and Farrington (1977) analyzed data from the Cambridge Study in Delinquent Development and found the modal reason given for offending among the all-male sample was utilitarian (46% for self-reported offenses), including money and material gain. Almost one third (31%) of the respondents gave a hedonistic reason for offending such as excitement. Eleven percent of the males downplayed their responsibility for the offense by attributing offending to their substance use. Finally, the remaining 7% of the sample cited peer pressure as their reason for offending. In addition, younger offenders were more likely to report hedonistic purposes for offending while older teenagers and young adults were more likely to report utilitarian purposes (see also Petersilia, Greenwood, & Lavin, 1978).

In his analysis of the 1972 National Survey of Youth, Agnew (1990) reported that explanations for delinquency differed by offense type. Specifically, for property crimes, the most common reasons were pleasure and utilitarian purposes. For violent crimes, the youth cited revenge and retaliation

themes, while both social pressure and pleasure motivations were identified for drug-related offenses. Agnew also explored possible sex differences within these motivations and uncovered a few notable divergences. Specifically, males were more likely to commit theft for utilitarian purposes than females. Females, on the contrary, were more likely to illegally enter someone else's property due to curiosity or for thrills than males. In sum, Agnew proposed that there are some differences in offending motives by sex, with males being more likely to offend for nonemotional reasons than females.

In their discussion surrounding gender differences in offending, Steffensmeier and Allan (1996) also argued that there may be gender differences in motivations based on crime type. Specifically, unlike male violence, female violence was more likely to be perpetrated out of severe depression or self-defense. In addition, female initiation of substance use was more likely to be driven by relational involvement. As males were more likely than females to commit income-producing crimes prior to initiating drug use, females tended to exhibit an increase in these types of crimes to support their habit.

Other studies, however, do not report many gendered differences in reasons to offend (Brookman et al., 2007; Kruttschnitt, 2013; Kruttschnitt & Carbone-Lopez, 2006; J. Miller, 1998). Through personal interviews of a sample of active street robbers from St. Louis, J. Miller (1998) found that although the methods of robbery differed by gender, expressed motivations for robbery largely did not vary. The modal reason for offending was to gain money or other material goods, either out of necessity, to support a drug habit, or to gain status. Interestingly, men were more likely to cite the need to acquire money out of necessity compared with women, perhaps due to women having access to additional financial resources such as familial or other forms of social support (see also Wright & Decker, 1997). Some of the other motivations included excitement or fun and revenge, though again these motivations were not found to differ by gender. This pattern of findings was replicated with a sample of incarcerated street robbers from the United Kingdom (Brookman et al., 2007).

There is also evidence to suggest that although the reasons males and females cite for their offending may be similar, the process they take to arrive at these reasons may differ substantially (Kruttschnitt & Carbone-Lopez, 2006; Wattanaporn & Holtfreter, 2014). Interviews of incarcerated female violent offenders found that these women reported several reasons for offending, including a desire to repair their reputation following an act of disrespect, out of jealousy, self-defense, self-help, or victim precipitation (Kruttschnitt & Carbone-Lopez, 2006). Although many of these concerns are similar for males, the precipitating event was often gendered, such as someone insulting her as a mother or a faithful romantic partner. In other words,

the reputational or financial threats these individuals experience are gender-specific. Factors such as victimization and child care are more likely to affect women than men and thus could uniquely affect their motives and/or pathways to offending (Wattanaporn & Holtfrete, 2014).

In sum, the literature does not speak with one voice regarding men and women's reasons for offending. Yet, related theoretical and empirical work has uncovered evidence to suggest sex differences in how individuals experience strain (Broidy & Agnew, 1997; N. L. Piquero & Sealock, 2004). Specifically, prior work indicates women are more likely than men to internalize their emotions when they encounter strain and are thus more likely to experience depression and anxiety (e.g., Conger, Lorenz, Elder, Simons, & Ge, 1993; Rosenfeld, 1980; Turner, Wheaton, & Lloyd, 1995). On the contrary, men are more likely to experience anger and hostility in response to strain. Although the current study does not include possible precipitating factors, the evidence regarding differential experiences with respect to strain across sex in conjunction with Agnew's (1990) findings regarding explanations for delinquency lends support to the idea of possible sex differences in motivations for offending. Specifically, males may be more likely to report nonemotional reasons for offending, whereas females may be more likely to report emotional reasons for offending. The current study investigates whether there are differences by sex in motives for offending. With this in mind, we next consider what is known regarding diversity in the motives to offend.

Diverse Motivations for Offending

While some researchers consider motivations to offend more generally (i.e., emotional or nonemotional motives), others have considered a more diverse array of motives, such as anger and impulsivity. Past research suggests these factors arise due to a combination of personality, values, attitudes, moral reasoning, and maturity (Putnins, 2010). More specifically, research has explored economic need, anger/revenge, impulsivity, and peer acceptance as potential offending motives.

Hawes et al., (2016) examined anger in a sample of male adolescents and found that males who displayed anger and exhibited poor cognitive control during childhood were more likely to display antisocial personality traits during adulthood. Yorke and Dallos (2015) reported that anger failed to differentiate between violent and nonviolent juvenile offenders, and that anger was embedded into the communication patterns of families and a part of the interpersonal issues experienced by these youth. In addition, impulsivity, defined as acting quickly without thought or assessment of consequences (Buss & Plomin, 1975) has been found to be one of the key factors of criminal

behavior (Gottfredson & Hirschi, 1990). High levels of impulsivity among adolescents are often linked to antisocial traits (e.g., Cauffman, Steinberg, & Piquero, 2005; Neumann, Barker, Koot, & Maughan, 2010), problem behaviors (e.g., Vitaro, Arseneault, & Tremblay, 1999), problems in their learning environment (e.g., Chen & Vazsonyi, 2010; Vogel & Barton, 2011), and delinquency (e.g., Meier, Slutske, Arndt, & Cadoret, 2008). In their seminal work of over 300 convicted burglars in the United Kingdom, Bennett and Wright (1984) concluded that money and influence of others were among the most common reasons that youth indicated for committing burglary. Similarly, peer influence and excitement were noted as motives to offend for approximately 63% of the 1,154 participants (Youth Justice Board, 2009).

It is also possible that mental health and substance use influence the reasons why individuals offend. In the next section, we engage that literature to further illuminate the potential influences of offending motivations.

Impact of Mental Health Problems and Substance Use on Reasons for Offending

A long line of research has examined the connections between mental health and offending (Silver, Felson, & Vaneseltine, 2008; Silver, Piquero, Jennings, Piquero, & Leiber, 2011; Teplin et al., 2006). Although Silver et al. (2008) explored the relationship between mental health and violence among criminal offenders, they did not directly explore whether mental health was a specific offending motive. Nonetheless, Silver and colleagues (2008) found strong associations between mental health, assaultive violence, and sexual offenses. They asserted that “mental illness is a causal factor in deviant behavior, some of which involves violence, and that the more deviant the behavior, the greater the effect of mental illness” (Silver et al., 2008, p. 423). Although mental illness is associated with impaired judgment, which affects offending, it is important to note that only a small percentage of violent behavior is due to mental illness (Rueve & Welton, 2008). Still, offenders with mental illness often have impaired judgment, which affects their decision making and ultimately increases the likelihood of risky behavior (Silver et al., 2008).

Taylor (1985) explored mental illness, more specifically, psychosis, as a motive to offend in a sample of 203 offenders, 121 of whom were mentally ill. Taylor noted that approximately half of the mentally ill offenders attributed their motives to issues unrelated to their mental illness although almost all of the mentally ill offenders were engaged in a psychotic episode at the time their offenses occurred. In a Medline analysis of studies exploring mental illness, more specifically, schizophrenia, substances abuse, and reasons

for violence, Soyka (2000) concluded that there were several confounding variables (e.g., antisocial personality, employment status, social class, and male gender) that influenced violence and aggression. Notwithstanding, the comorbidity of substance abuse and schizophrenia increased the probability of aggression and violence, which lends support to the idea that the effect of one may be modified by levels of the other (Soyka, 2000).

The relationship between substance use and offending has been well explored and well documented (Aarons, Brown, Hough, Garland, & Wood, 2001; D'Amico et al., 2015; Feldstein Ewing, Filbey, Loughran, Chassin, & Piquero, 2015; Putnins, 2010). Putnins (2010) explored reasons to offend among a sample of 516 juvenile offenders and several motivational themes were discovered, substance use being one of the most common. Substance use in the aforementioned study was comprised of both the desire for and acquisition of substances (Putnins, 2010). Similarly, Sampson and Themelis (2009) stated that young offenders in their local youth inclusion programs noted that supplying a drug habit or the excitement of getting high or buzzed was one of the top reasons to offend. Putnins (2010) recommended a philosophical shift in approaching substance abuse treatment for youth who offend. More specifically, substance abuse interventions should increasingly be oriented toward actual treatment outcomes instead of using substance abuse counseling as a punishment for breaking the law. Substance use is linked to recidivism and violent behavior, and the term "drug-crime cycle" has been used to describe substance-using youth who are in frequent contact with the justice system (White & Gorman, 2000). In addition, although involvement in the drug-crime cycle is a well-documented predictor of recidivism (Cottle et al., 2001), only an estimated one in six youth in the justice system receives the substance abuse treatment they need (Hodgon, 2008).

Current Study and Hypotheses

Unlike research that assesses the influence of a specific theoretical construct on criminal offending, the motives or reasons why persons offend has been one of the least studied issues within criminology. As discussed above, knowledge regarding offenders' motivations is not only useful for building more comprehensive theoretical frameworks, but it is also important to inform prevention and intervention strategies. In addition, as many juvenile justice-involved youth have been diagnosed with some form of mental illness (Fox et al., 2014; NIMH, 2016) as well as some type of substance use issue (Aarons et al., 2001; Hodgon, 2008), understanding the independent and joint roles of these conditions on the motivation for offending would be especially important for improving treatment strategies. Based on prior

literature, it is expected that those with mental health disorders are more likely than their peers without such disorders to offend out of anger or revenge motives (Felson, Silver, & Remster, 2012; Prins & Draper, 2009; Skeem et al., 2013). As scholars have also found that those with substance abuse issues are more likely to offend for financial reasons (Gudjonsson et al., 2011), we hypothesize that those with alcohol and drug use histories are more likely to cite money or material gain motives.

Furthermore, we also investigate the joint role of mental health and substance abuse on reasons for offending. As this question has received very little attention in the literature, it is herein considered more exploratory in nature. As the presence of mental health and substance abuse issues are hypothesized to have contrasting effects on reasons for offending, the joint impact remains unknown.

Finally, as Agnew (1990) has reported some sex differences in reasons for offending, we also consider how sex interrelates with both mental health and substance abuse to predict reasons for offending. We hypothesize that regardless of mental health and prior drug use status, males will be more likely to cite anger motivations than females. To test these hypotheses, we consider these issues in a sample of justice-involved youth who are older than 16 years, in large part because the vast majority of previous research and government resources define transition-age youth between the ages of 16 and 25 (Zajac, Sheidow, & Davis, 2013). Limiting the sample to this particular age group permits the ability to detect mental illness and substance use for the majority of those who may eventually meet the criteria for mental disorders based on prevalence and age of onset.

Method

Sample

To address our research questions, we utilized data from the Florida Department of Juvenile Justice (DJJ). A 3-year cohort of youth, who received an official referral, were disposed and subsequently completed a community-based placement between July 1, 2009 and June 30, 2012, and who were at least 16 years of age at the time they completed placement, form the sample for our study. All Florida DJJ-referred youth are administered the Positive Achievement Change Tool (PACT) risk/needs assessment, a tool that has been found to predict juvenile recidivism in prior research (Baglivio, 2009; Baglivio & Jackowski, 2013; Baird et al., 2013; Winokur-Early, Hand, & Blankenship, 2012). The reliability of the PACT has been assessed among a sample of Florida DJJ assessors using videotaped interviews and an offense

history file, with findings demonstrating an ICC of .83 and only 4% of items (five items) with less than 75% agreement with an “expert” rater (Baird et al., 2013). The validity of the PACT assessed in Florida DJJ included assessing predictive validity across gender, race/ethnicity, and dispositions/placements (such as diversion, probation supervision, and day-treatment centers) to ensure the PACT is appropriate for different subgroups of Florida juvenile offenders (Baglivio, 2009; Baglivio & Jackowski, 2013; Baird et al., 2013; Winokur-Early et al., 2012). Each of these studies examined the PACT as implemented by Florida DJJ and included both juvenile and adult arrests/convictions, with 1-year follow-up periods for all youth. There are two versions of the PACT: a Prescreen and the Full Assessment. Upon entry to the DJJ system, all youth are assessed with the Prescreen. Those classified as a moderate-high or high risk to reoffend are given the Full Assessment. During their time under supervision, youth are reassessed every 90 days if they were classified as moderate-high- or high risk, or every 180 days if they were classified as low- or moderate risk. A previously low- or moderate risk youth may be assessed using the Full Assessment if they are reclassified as a higher risk while under supervision. In addition, the youth being considered for residential placement, a day-treatment program, or DJJ’s Redirection program (intensive community-based therapeutic services, such as Functional Family Therapy) are also administered the Full Assessment. All measures were taken from the PACT Full Assessment administered closest to the date the youth completed their placement.

In comparison with the sample used in the current investigation, the full population of all community-based Florida DJJ youth during the study period was composed of 131,261 juvenile referrals. Among those youth, 114,502 received a PACT assessment (Prescreen or Full Assessment), of whom 75.5% were low risk, 11.0% moderate risk, 9.2% moderate-high risk, and 4.4% high risk to reoffend. Importantly, youth not assessed with a PACT assessment are those individuals who were never formally processed at a juvenile assessment center. Essentially, these youth were given a notice to appear in court and the judge and/or prosecuting attorney decided against formal processing. Of the youth assessed with a PACT (Prescreen or Full Assessment), 74,171 were aged 16 years or older (meeting the study criteria), 71.1% assessed with a Prescreening, 28.9% using the Full Assessment. Only the youth administered the Full Assessment were included in our sample, as only this version contains the items corresponding to the “reasons for offending” measure used herein. While the current study sample represents 40% of the population of Florida DJJ community-based youth formally processed during the study period, it is arguably a higher risk sample. As we also restrict our sample to those who are at least 16 years old at the time they complete their placement,

this results in the final sample of 18,749 cases (16.4% of the total sample), 33.72% being low risk, 16.34% moderate risk, 34.51% moderate-high risk, and 15.42% high risk to reoffend. Compared with the full population, the youth in the sample were significantly more male ($t = -29.460, p < .001$), a higher proportion were Black ($t = -22.289, p < .001$), similar with respect to proportion Hispanic, at higher risk to reoffend ($t = -144.231, p < .001$), and had a younger age at first referral/arrest ($t = 109.779, p < .001$).

Measures

Dependent variable. For this study, our outcome measure was based on the youth's self-reported reason for offending. The youth were instructed to indicate only the "primary" purpose for committing crimes in the last 6 months. Furthermore, the motivations provided by the youth were for offending in general, not necessarily for the presenting offense. This measure contained six possible reasons: (a) anger/revenge; (b) impulse; (c) sexual desire; (d) money or material gain (including drugs); (e) excitement, amusement, or fun; and (f) peer status, acceptance, or attention. This variable was coded in the following manner: "0" indicated those who offended out of anger or revenge (18.03% of our sample), "1" indicated those who had an impulsive reason for offending (36.78%), "2" indicated those who offended out of sexual desire (2.05%), "3" indicated those who offended for money or material gain (19.44%), "4" represented those who offended for excitement (7.33%), and "5" indicated those who offended for peer status (16.37%).

Key independent variables. This study had three primary independent variables: having a history of serious mental health problems, prior substance use, and gender. A qualified professional from the social service/health care field confirmed whether each youth had a history of mental health problems, such as schizophrenia, bipolar, mood, thought, personality, or adjustment disorders (Note: Per the PACT protocol, this measure specifically excluded conduct disorder, oppositional defiant disorder, substance abuse, and Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder). Florida Statutes define who is qualified to make this diagnosis, which in this case is a Licensed Mental Health Professional. In Florida, a Licensed Mental Health Professional is defined as

a psychiatrist licensed under Chapter 458 or 459, F.S., who is board certified in Child and Adolescent Psychiatry or Psychiatry by the American Board of Psychiatry and Neurology or has completed a training program in Psychiatry approved by the American Board of Psychiatry and Neurology for entrance

into its certifying examination, psychologist licensed under Chapter 490, F.S., mental health counselor, clinical social worker or marriage and family therapy licensed under chapter 491, F.S., or psychiatric nurse as defined in Chapter 394.455(23), F.S.

The confirmation of the youth's diagnosis is made by the PACT assessor through an internal review (electronically, through the Florida DJJ information system) by examining clinical and evaluation records. Diagnoses are based on the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association [APA], 1994; due to the study period, which is prior to the *DSM-5* (APA, 2013). Youth who had any history of a serious mental health problem were coded as "1," while those who did not have any history with this issue were coded as "0." Eighteen percent of the sample had a history of serious mental health problems.

This study also utilized a measure of prior drug use. Importantly, the PACT Full Assessment includes several measures of drug use. For each youth, these measures indicate whether he or she had any history of drug use, and if his or her prior drug use had any of the following effects: caused family conflict, disrupted education, caused health problems, interfered with keeping prosocial friends, contributed to criminal behavior, a need for increasing amounts of drugs to achieve the same level of high, and experiencing withdrawal problems. Following prior research (Baglivio, Wolff, Piquero, & Epps, 2015; Wolf, Baglivio, & Piquero, 2015), these measures were coded such that "0" indicated the youth did not use any drugs, "1" indicated a history of drug use but did not experience any of the above effects, and "2" indicated history of drug use and accompanied by at least one of the problematic effects listed above. In our sample, 44.51% had used drugs and 25.27% indicated past drug use and had experienced at least one of these negative consequences as a result of their drug use.¹

As the current study is also interested in how the respondent's sex may moderate the effect of serious mental health issues and drug use on motivations for offending, sex was our final key independent variable. Sex was coded "1" for males (78.52%) and "0" for females.

Control variables. In addition to our key independent variables, the multinomial logistic regression models estimated included several relevant control measures. The analyses controlled for race/ethnicity with two variables: whether the youth was Black, coded as "1," (47.35%) or of Other race/ethnicity, coded as "0," and whether the youth was Hispanic, coded as "1," (15.43%) while all others were coded as "0." The remaining 34.30% of the sample was non-Hispanic White or of Other race/ethnicity. In our final sample, only 89

respondents (0.43%) indicated they were of “Other” race/ethnicity. Based on this small sample size, the current study includes the “Other” respondents with the White subsample.

Parental alcohol and drug use was also included as a control variable. The Full Assessment indicated whether at least one of the youth’s parents had an alcohol or a drug problem. A dichotomous measure was created where “0” indicated the youth’s parents did not have an alcohol or drug problem and “1” indicated that at least one of their parents had a problem with either alcohol or drugs. In our sample, 8.5% of youth reported having a parent with a problem with either alcohol or drugs.

To control for socioeconomic status (SES), we measure the extent of concentrated disadvantage in the youth’s neighborhood, derived from the socioeconomic conditions present in the youth’s census tract (see Baglivio, Wolff, Epps, & Nelson, 2015; Craig, Baglivio, Wolff, Piquero, & Epps, 2016). Data from the American Community Survey (ACS) were utilized to indicate concentrated disadvantage through six variables: (a) proportion of families living below the poverty line, (b) median family income (logged and reverse coded), (c) proportion of female-headed households, (d) unemployment rate, (e) proportion with a high school diploma (reverse coded), and (f) proportion of households receiving public assistance. The youth’s home address was geocoded using MapMarker software (Version 24.1) available from Pitney Bowes to match with 2010 census tract data from the 2008 to 2012 ACS 5-year estimates (U.S. Census Bureau, 2015). Confirmatory factor analysis indicated that these measures loaded on a single factor. These items were standardized and exhibited good internal consistency ($\alpha = .877$). The average SES score was 0.39 on a scale from -2.19 to 3.54 and shows that a slightly larger proportion of youth lived in areas considered to be marginally higher than the average level of disadvantage across the state.

Due to data entry errors and incomplete address information, 2,074 youth could not be successfully geocoded. This resulted in a final sample of 18,749 youth. The 2,074 youth who were excluded due to missing address information were more likely to have mental health problems ($t = -3.76, p < .001$), less likely to be Black ($t = 7.36, p < .001$), and more likely to have parents with substance use problems ($t = -9.97, p < .001$) than retained youth. It appears that the higher risk youth were more likely to be missing data for this variable, so our results are likely to be on the conservative side as far as the risk level is concerned.

Analysis Plan

After assessing bivariate correlations, several multinomial logistic regression models were estimated to investigate the independent and combined roles of

mental health and substance use on reasons for offending among the full sample and sex subsamples. This estimation method was selected as it allows for the retention of the original diversity of the reasons to offend measure. Furthermore, the independence of irrelevant alternatives assumption can be made as it can reasonably be assumed that each reason to offend is independent of the others (Long & Freese, 2006). The first model presents the effect of having a history of mental illness and the control variables on reasons for offending among the full sample. The second model considers the effects of prior drug use and the control variables on reasons for offending among the full sample. Finally, the third model in this set combines the two primary independent variables to assess the joint effects of each on reasons for offending while controlling for the other.

To examine the possibility of sex-specific effects, two different sets of models were estimated. The first set estimated the effects of serious mental health problems and having a history of drug use on reasons for offending among males and then among females. The final set of models were also estimated for males and females separately. To answer our primary research question regarding the joint impact of mental health issues and drug use, we estimated four different regressions. The first two estimated the effects of prior drug use and the control variables among males with and without a history of serious mental health problems. The final two estimated the effects of prior drug use and the control variables among females with and without serious mental health problems.²

It should be noted that prior to conducting the analyses for the study, an analysis for missing data found that the concentrated disadvantage measure was missing at random with respect to reasons for offending. Mahalanobis Distance scores indicated the presence of 596 multivariate outliers, or approximately 3.08% of the sample. Supplemental analyses were estimated with and without these outliers and while the results were found to be substantively similar, the model fit improved with the outliers excluded. As a result, the multivariate outlier cases were dropped in the analyses presented.

Results

Bivariate Correlations

The bivariate correlations between all variables in the current study are shown in Table 1. It can be seen that the different motivations to offend have weak but differing relationships with both having a serious mental health problem and prior drug use. There is a positive and significant correlation between having a serious mental health problem and reporting an

Table 1. Bivariate Correlations Between All Variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Anger/revenge	1.00												
2. Impulse	-.36**	1.00											
3. Sexual desire	-.07**	-.11**	1.00										
4. Money/material gain	-.23**	-.37**	-.07**	1.00									
5. Excitement	-.13**	-.21**	-.04**	-.14**	1.00								
6. Peer status	-.21**	-.34**	-.06**	-.22**	-.12**	1.00							
7. Serious mental health problems	.09**	.00	.01	-.04**	-.01	-.05**	1.00						
8. Past drug use	-.09**	-.03**	-.11**	.15**	.04**	-.01	.10**	1.00					
9. Sex	-.19**	.02**	.07**	.10**	.04**	.02*	-.10**	.09**	1.00				
10. Black	.04**	.00	-.05**	.04**	-.07**	-.01	-.12**	-.17**	-.02*	1.00			
11. Hispanic	-.03**	-.02**	.00	.01	-.01	.05**	-.06**	.02**	.06**	-.41**	1.00		
12. Concentrated disadvantage	.02*	-.01*	-.01	.04**	-.07**	.01	-.08**	-.10**	.00	.42**	-.04**	1.00	
13. Parental substance problems	.00	.00	-.01	.01	.01	-.03**	.08**	.10**	-.05**	-.10**	-.07**	-.05**	1.00

* $p < .05$. ** $p < .01$.

anger/revenge reason for offending. There is a negative and significant correlation between having a serious mental health problem and reporting a money/material gain reason for offending or peer status reason. However, prior drug use is significantly and negatively related to offending out of anger/revenge, sexual desire, or impulse. Prior drug use also has a significant and positive correlation with money/material gain and excitement. There is also a weak but positive and significant relationship between prior drug use and having a serious mental health problem.³

Effects of History of Serious Mental Health Problems on Reasons for Offending

Table 2 presents the results regarding the effect of each of our key independent variables on reasons for offending in the full sample. The multinomial logistic regression model requires that one outcome be selected as the reference group to which all other possible outcomes are compared against. For the current analyses, the impulse reason to offend was selected as the reference group as it was the modal outcome. In other words, as each of the models was estimated, the coefficient estimates can be interpreted as being relative (or compared with) those who self-reported an impulsive reason to offend.⁴ Model results with respect to independent variables are presented using relative risk ratios (RRRs), which are interpreted similarly to odds ratios, where significant values greater or smaller than 1 reflects an increase or decrease in the relative probability of that particular outcome, relative to the comparison group (in this case those with an impulse reason for offending).

The first model indicates the impact of having a history of serious mental health problems along with the control variables on reasons for offending. Having a history of serious mental health problems significantly increased the odds of having an anger/revenge reason for offending relative to an impulse reason for offending ($RRR = 1.49, p < .01$). These youth were less likely to report offending for material gain ($RRR = 0.86, p < .01$), for excitement ($RRR = 0.81, p < .01$), or to gain peer status relative to impulse reasons ($RRR = 0.71, p < .01$). However, those with a history of serious mental health problems were no more or less likely to indicate a sexual desire for offending relative to impulsive reasons.

Effects of Prior Drug Use on Reasons for Offending

The second model in Table 2 presents the results of the multinomial logistic regression estimating the effects of prior drug use and the control variables on

Table 2. Multinomial Logistic Regression Predicting Reasons for Offending Among the Full Sample.

Variable	Model 1		Model 2		Model 3	
	RRR	SE	RRR	SE	RRR	SE
Anger/revenge versus impulse						
Serious mental health problems	1.49**	0.08	—	—	1.55**	0.08
Past drug use	—	—	0.85**	0.03	0.83**	0.03
Sex	0.43**	0.02	0.42**	0.02	0.44**	0.02
Black	1.19**	0.06	1.07	0.06	1.13*	0.06
Hispanic	1.04	0.07	0.96	0.07	1.02	0.07
Concentrated disadvantage	1.04	0.03	1.03	0.03	1.03	0.03
Parental substance problems	0.92	0.07	0.98	0.08	0.96	0.07
Constant	0.74**	0.04	1.00	0.06	0.87*	0.05
<i>n</i>	10,276					
Sexual desire versus impulse						
Serious mental health problems	1.18	0.15	—	—	1.32*	0.18
Past drug use	—	—	0.28**	0.02	0.28**	0.03
Sex	8.82**	2.72	9.70**	2.99	9.83**	3.03
Black	0.40**	0.05	0.31**	0.04	0.32**	0.04
Hispanic	0.67**	0.10	0.59**	0.09	0.61**	0.10
Concentrated disadvantage	1.20*	0.09	1.17*	0.09	1.17*	0.09
Parental substance problems	0.689	0.14	0.93	0.20	0.90	0.19
Constant	0.01**	0.00	0.03**	0.01	0.02**	0.01
<i>n</i>	7,280					
Money/material gain versus impulse						
Serious mental health problems	0.86**	0.05	—	—	0.79**	0.04
Past drug use	—	—	1.66**	0.05	1.67**	0.05
Sex	1.70**	0.10	1.59**	0.09	1.56**	0.09
Black	1.21**	0.06	1.39**	0.07	1.36**	0.07
Hispanic	1.27**	0.09	1.35**	0.09	1.32**	0.09
Concentrated disadvantage	1.07*	0.03	1.08**	0.03	1.08**	0.03
Parental substance problems	1.21*	0.09	1.07	0.08	1.08	0.08
Constant	0.29**	0.02	0.16**	0.01	0.18**	0.01
<i>n</i>	10,541					
Excitement versus impulse						
Serious mental health problems	0.81**	0.07	—	—	0.79**	0.06
Past drug use	—	—	1.18**	0.05	1.20**	0.05
Sex	1.33**	0.11	1.33**	0.11	1.30**	0.10
Black	0.63**	0.05	0.67**	0.05	0.66**	0.05
Hispanic	0.79**	0.07	0.82*	0.07	0.80*	0.07
Concentrated disadvantage	0.85**	0.03	0.85**	0.04	0.85**	0.04
Parental substance problems	1.02	0.11	0.97	0.10	0.98	0.10
Constant	0.21**	0.02	0.171**	0.02	0.18**	0.02
<i>n</i>	8,270					

(continued)

Table 2. (continued)

Variable	Model 1		Model 2		Model 3	
	RRR	SE	RRR	SE	RRR	SE
Peer status versus impulse						
Serious mental health problems	0.74**	0.05	—	—	0.74**	0.05
Past drug use	—	—	1.04	0.03	1.05	0.03
Sex	0.98	0.05	1.00	0.05	0.97	0.05
Black	0.99	0.05	1.03	0.06	1.00	0.05
Hispanic	1.39**	0.09	1.44**	0.09	1.39**	0.09
Concentrated disadvantage	1.06	0.03	1.06*	0.03	1.06	0.03
Parental substance problems	0.82*	0.07	0.80**	0.07	0.81*	0.07
Constant	0.45**	0.03	0.40**	0.03	0.43**	0.03
<i>n</i>	9,966					
Cox–Snell R^2	.065		.095		.103	
<i>n</i>	18,749		18,749		18,749	

Note. RRR = relative risk ratio.

* $p < .05$. ** $p < .01$. (two-tailed).

reasons for offending. As shown, youth with a history of drug use were significantly less likely to give anger/revenge or sexual desire as reasons for offending relative to an impulsive reason ($RRR = 0.85$, $p < .01$; $RRR = 0.28$, $p < .01$, respectively). These individuals were more likely to indicate money/material gain or excitement as reasons for offending when compared with impulsive reasons ($RRR = 1.66$, $p < .01$; $RRR = 1.18$, $p < .01$, respectively). Relative to impulsive reasons for offending, having a history of drug use was unrelated to offending for peer status.

Effects of Serious Mental Health Issues and Prior Drug Use on Reasons for Offending

The final model in Table 2 presents the results of the multinomial logistic model with two of the key independent variables. The first comparison reveals that, whereas having a history of serious mental health issues increases the likelihood of offending out of anger/revenge ($RRR = 1.55$, $p < .01$), having a history of drug use decreases this reason for offending relative to offending out of impulse ($RRR = 0.85$, $p < .01$). Having a history of serious mental health problems increased the probability of offending out of sexual desire ($RRR = 1.32$, $p < .05$), whereas having a history of prior drug use decreased this reason ($RRR = 0.28$, $p < .01$), relative to impulsive reasons for offending. However, while mental health issues served to increase offending

out of anger/revenge and sexual desire and prior drug use decreased these reasons relative to offending out of impulse, an opposite relationship was detected for offending due to money/material gain or excitement. Specifically, youth with serious mental health problems were significantly less likely to report offending for material gain or excitement relative to impulsive reasons ($RRR = 0.79, p < .01$; $RRR = 0.79, p < .01$, respectively), whereas persons with a history of prior drug use were more likely to indicate that they offended for material gain or excitement relative to impulsive reasons ($RRR = 1.67, p < .01$; $RRR = 1.20, p < .05$, respectively). In the final comparison, results showed that having a serious mental health problem decreased the likelihood of offending to gain peer status relative to offending out of impulse ($RRR = 0.74, p < .01$). Prior drug use did not affect offending for peer status relative to impulsive reasons.

Sex-Specific Effects of Serious Mental Health Issues and Prior Drug Use on Reasons for Offending

As sex has been found to be related to reasons for offending in several of our preliminary models, we split the sample by sex to investigate the impact of having a history of serious mental health issues and drug use on reasons for offending among males and females. Accordingly, we first conducted a set of *t* tests to investigate potential sex differences in reasons for offending. These tests revealed that males were more likely than females to report offending out of impulse ($t = -2.86, p < .01$), sexual desire ($t = -9.70, p < .001$), for money/material gain ($t = -14.32, p < .001$), excitement ($t = -5.20, p < .001$), and for peer status ($t = -1.93, p < .05$). Females, on the other hand, are more likely to report offending out of anger/revenge ($t = 27.68, p < .001$) than males.

These findings indicate that there are sex differences in reasons for offending, providing further motivation to investigate for potential sex differences in the effects of mental health and prior drug use on reasons for offending. These results, presented in Table 3, indicate that among males and females having a serious mental health issue increases the likelihood of offending out of anger/revenge relative to impulse ($RRR = 1.65, p < .01$; $RRR = 1.43, p < .01$, respectively), whereas having a history of drug use decreases citing anger/revenge reasons for offending ($RRR = 0.84, p < .01$; $RRR = 0.83, p < .01$, respectively.) The next comparison indicates that serious mental health problems increase the odds of offending out of sexual desire relative to impulse for males ($RRR = 1.34, p < .05$) but this was not true for females. Having a history of prior drug use decreased offending out of sexual desire relative to impulse for both males and females ($RRR = 0.28, p < .01$; $RRR = 0.29, p < .05$, respectively).

Table 3. Multinomial Logistic Regressions Predicting Reasons for Offending Among the Sex Subsamples.

Variable	Males		Females	
	RRR	SE	RRR	SE
Anger/revenge versus impulse				
Serious mental health problem	1.65**	0.11	1.43**	0.13
Past drug use	0.84**	0.03	0.83**	0.05
Black	1.01	0.06	1.33**	0.13
Hispanic	0.98	0.08	0.99	0.13
Concentrated disadvantage	1.03	0.04	1.02	0.05
Parental substance problems	0.91	0.09	1.07	0.14
Constant	0.40**	0.02	0.81*	0.07
<i>n</i>	7,570		2,706	
Sexual desire versus impulse				
Serious mental health problem	1.34*	0.18	0.77	0.62
Past drug use	0.28**	0.03	.29*	0.16
Black	0.33**	0.05	0.11**	0.09
Hispanic	0.64**	0.10	0.23	0.26
Concentrated disadvantage	1.17*	0.09	1.67	0.72
Parental substance problems	0.91	0.20	0.00	0.00
Constant	0.24**	0.02	.04**	0.02
<i>n</i>	5,858		1,422	
Money/material gain versus impulse				
Serious mental health problem	0.76**	0.05	0.99	0.13
Past drug use	1.74**	0.06	1.30**	0.10
Black	1.45**	0.08	0.89	0.12
Hispanic	1.43**	0.10	0.76	0.14
Concentrated disadvantage	1.07*	0.03	1.17*	0.08
Parental substance problems	1.03	0.09	1.27	0.21
Constant	0.25**	0.01	0.26**	0.03
<i>n</i>	8,656		1,885	
Excitement versus impulse				
Serious mental health problem	0.78**	0.07	0.81	0.14
Past drug use	1.16**	0.05	1.36**	0.14
Black	0.66**	0.05	0.64*	0.12
Hispanic	0.81*	0.08	0.79	0.19
Concentrated disadvantage	0.86**	0.04	0.81*	0.08
Parental substance problems	0.85	0.10	1.54*	0.31
Constant	0.24**	0.02	0.15**	0.03
<i>n</i>	6,638		1,632	
Peer status versus impulse				
Serious mental health problem	0.68**	0.05	0.89	0.10
Past drug use	1.03	0.04	1.07	0.07
Black	1.07	0.07	0.81	0.10
Hispanic	1.52**	0.11	0.96	0.15
Concentrated disadvantage	1.10**	0.04	0.92	0.06
Parental substance problems	0.77*	0.08	0.92	0.15
Constant	0.41**	0.02	0.49**	0.05
<i>n</i>	7,939		2,027	
Cox–Snell R^2	.075		.045	
<i>n</i>	14,721		4,028	

Note. RRR = relative risk ratio.

* $p < .05$. ** $p < .01$. (two-tailed).

Having a serious mental health problem decreased offending for money/material gain for males only ($RRR = 0.76, p < .01$), whereas prior drug use increased this reason for offending relative to impulse for both males and females ($RRR = 1.74, p < .01$; $RRR = 1.30, p < .01$). Similarly, mental health problems decreased the likelihood of males, but not females, reporting offending out of excitement ($RRR = 0.78, p < .01$) while past drug use increased offending for excitement reasons relative to impulse ($RRR = 1.16, p < .01$; $RRR = 1.36, p < .01$). The final comparison indicated that serious mental health issues decreased the likelihood of peer status as a motivation to offend relative to impulse among males only ($RRR = 0.68, p < .01$). Prior drug use did not affect the likelihood of citing peer status reasons relative to impulse in males or females.

Sex-Specific Effects of Prior Drug Use on Reasons for Offending Among Those With and Without a History of Serious Mental Health Problems

To continue this gender-specific investigation and in light of the differences observed regarding the effects of serious mental health problems and prior drug use on reasons for offending, we next assess whether there were gender differences in how prior substance use related to the reasons for offending among those with and without histories of serious mental health problems. The analyses presented in Table 4 assessed the relationship between prior drug use and the control variables on reasons for offending among those with and without a history of serious mental health problems and by sex. An advantage of performing split sample estimations, in lieu of traditional interaction effects, is the ability to directly capture the point estimate of the key independent variable (and control variables) in the model for males and females separately.

Model 1 indicates that among males with a serious mental health problem, prior drug use significantly decreased their likelihood of citing anger/revenge or sexual desire relative to impulsive reasons for offending ($RRR = 0.78, p < .01$; $RRR = 0.37, p < .01$, respectively). Among this subsample, prior drug use significantly increased the likelihood of offending for money/material gain and peer status relative to impulsive reasons ($RRR = 1.86, p < .01$; $RRR = 1.24, p < .05$) but it did not significantly predict offending for excitement relative to impulsive reasons.

The second model presents the results of the multinomial logistic regression among males without a history of mental health problems. Among this subsample, prior drug use significantly decreased the probability of offending out of anger/revenge and sexual desire ($RRR = 0.87, p < .01$; $RRR = 0.25$,

Table 4. Logistic Regressions Predicting Reasons for Offending by Sex and Mental Health Status.

Variable	Males				Females			
	Model 1		Model 2		Model 3		Model 4	
	With serious mental health problems	SE	Without serious mental health problems	SE	With serious mental health problems	SE	Without serious mental health problems	SE
Anger/revenge versus impulse								
Past drug use	0.78**	0.06	0.87**	0.04	0.74**	0.08	0.87*	0.06
Black	0.98	0.13	1.02	0.07	1.73**	0.31	1.18	0.14
Hispanic	0.87	0.17	1.02	0.09	1.03	0.29	0.95	0.15
Concentrated disadvantage	0.92	0.07	1.06	0.04	1.04	0.11	1.03	0.06
Parental substance problems	1.07	0.18	0.84	0.10	1.33	0.31	0.98	0.15
Constant	0.73**	0.08	0.38**	0.03	1.12	0.19	0.86	0.09
<i>n</i>	1,441		6,129		719		1,987	
Sexual desire versus impulse								
Past drug use	0.37**	0.06	0.25**	0.03	—	—	—	—
Black	0.37**	0.11	0.32**	0.05	—	—	—	—
Hispanic	0.49	0.22	0.66*	0.11	—	—	—	—
Concentrated disadvantage	1.48*	0.24	1.1	0.09	—	—	—	—
Parental substance problems	0.85	0.32	0.96	0.25	—	—	—	—
Constant	0.25**	0.05	0.25**	0.03	—	—	—	—
<i>n</i>	1,011		4,847		—		—	
Money/material gain versus impulse								
Past drug use	1.86**	0.16	1.72**	0.06	1.54**	0.24	1.23*	0.11
Black	1.13	0.16	1.51**	0.09	0.99	0.26	0.86	0.14
Hispanic	1.43	0.26	1.45**	0.11	0.51	0.24	0.82	0.17
Concentrated disadvantage	1.12	0.09	1.06	0.03	1.05	0.16	1.21*	0.10
Parental substance problems	1.06	0.19	1.02	0.09	1.48	0.43	1.18	0.23
Constant	0.19**	0.03	0.25**	0.02	0.21**	0.06	0.28**	0.04
<i>n</i>	1,362		7,294		467		1,418	

(continued)

Table 4. (continued)

Variable	Males			Females		
	Model 1		Model 2	Model 3		Model 4
	With serious mental health problems	SE		With serious mental health problems	SE	
Excitement versus impulse						
Past drug use	1.22	0.14				
Black	0.63*	0.13	1.15**	1.17	0.25	1.42**
Hispanic	0.81	0.22	0.67**	0.46	0.19	0.69
Concentrated disadvantage	0.93	0.11	0.81*	1.15	0.53	0.71
Parental substance problems	0.88	0.22	0.85**	0.90	0.19	0.79*
Constant	0.18**	0.03	0.84	1.14	0.49	1.71*
<i>n</i>	1,106		0.25**	0.16**	0.05	0.14**
			5,532	398		1,234
Peer status versus impulse						
Past drug use	1.24*	0.12				
Black	1.06	0.18	1.00	1.06	0.15	1.08
Hispanic	1.43	0.30	1.07	0.91	0.23	0.76*
Concentrated disadvantage	1.08	0.10	1.54**	1.71	0.54	0.8
Parental substance problems	0.86	0.19	1.10**	1.05	0.15	0.89
Constant	0.22**	0.03	0.75*	1.55	0.44	0.73
<i>n</i>	1,217		0.42**	0.35**	0.08	0.53**
			6,722	488		1,539
Cox-Snell R ²	.073		.066	.083		.039
<i>n</i>	2,413		12,308	1,045		2,983

Note. RRR = relative risk ratio.
p* < .05. *p* < .01. (two-tailed).

$p < .01$) as opposed to offending out of impulsiveness. Compared with offending due to impulsive reasons, prior drug use significantly increased the likelihood of males with a serious mental health issue offending for money/material gain and excitement ($RRR = 1.72, p < .01$; $RRR = 1.15, p < .01$). Among this subsample, prior drug use did not significantly predict offending for peer status relative to impulsive reasons.

The results among females are shown in Models 3 (with serious mental health problems) and 4 (without serious mental health problems). It should be noted that these analyses were estimated with the sexual desire reason excluded from the models as the number of females who offended out of sexual desire was very small ($n = 11$). Model 3 shows that among females with a history of serious mental health problems, prior drug use significantly decreased the probability of offending out of anger/revenge relative to impulse ($RRR = 0.74, p < .01$). Prior drug use increased the likelihood of offending for money/material gain ($RRR = 1.54, p < .01$) relative to impulse among this subsample. However, prior drug use failed to significantly predict any of the other offending reasons relative to offending out of impulse.

Model 4 indicated that prior drug use significantly decreased females without a serious mental health issue from offending out of anger/revenge relative to impulsive reasons ($RRR = 0.87, p < .05$), whereas it increased the likelihood of this subsample offending for money/material gain ($RRR = 1.23, p < .01$). In addition, this subsample was also significantly more likely to offend for excitement relative to impulse ($RRR = 1.42, p < .01$). Past drug use failed to significantly predict offending for peer status relative to impulsive reasons among females without a serious mental health problem.

Discussion and Conclusion

Although the prevalence of mental health and substance use issues among offenders has been established (Aarons et al., 2001; Fox et al., 2014; Hodgon, 2008; NIMH, 2016), less attention has been garnered to how these correlates interrelate with respect to predicting an offender's motivation to offend. In addition, as prior research has uncovered sex differences in reasons for offending (Agnew, 1990), we were also interested in possible sex differences with respect to the interplay of mental health and substance use on offending motivations. To address this void, the current study investigated the independent and joint roles of mental health and substance use issues on reasons for offending among a large sample of adjudicated youth from the state of Florida.

Based on our measure of offending motivation, we found that respondents reported much variability with respect to their primary motivation to offend.

While the modal motivation response was impulsivity (36.78%), almost 20% (19.44%) of the sample indicated that they offended for money or material gain. Eighteen percent of the sample indicated they offended out of anger or revenge, while 16.37% offended to gain peer status. In line with previous work (Felson et al., 2012; Prins & Draper, 2009; Skeem et al., 2013), we also found that those with mental health issues were significantly more likely to offend out of anger or revenge as opposed to out of impulsivity. This is not surprising, given that emotional dysregulation is linked to mental health issues (e.g., depression, attention deficit disorder, and aggressive behavior) and an inability to regulate emotions is often the primary reason for mental health referrals and treatment (Anto & Jayan, 2016). Interestingly, these individuals were less likely to offend for money/material gain, excitement, or to gain peer acceptance relative to impulsivity, a finding not predicted by prior literature.

Given the prevalence of substance use among justice-involved youth, the current study also examined the role of drug use on reasons for offending. In the Florida data, almost three quarters of youth (69.78%) had used drugs. Furthermore, those who had engaged in prior drug use were substantially more likely to report offending out of money/material gain or excitement motives, relative to impulsivity. Moreover, the effects of prior drug use on these reasons for offending were observed regardless of mental health status among both males and females. These findings are analogous to those that West and Farrington (1977) detected in the Cambridge Study, in that non-emotional purposes such as money/material gain were the modal reason for offending. In conjunction with our results, this suggests that regardless of sex, offending for money/material gain appears to be most commonly identified and this relationship is strongly influenced by prior drug use. Perhaps, those youth who use drugs offend to finance their habits/addiction or to gain status among their peers (Inciardi et al., 1993; Jacobs, 1999). This is particularly noteworthy as we found that our concentrated disadvantage measure failed to significantly predict reasons for offending across most of our analyses. Although disadvantage may increase offending in general, it does not appear to affect the self-reported reasons why individuals offend.

Given that the literature has been mixed in terms of the effects of gender on reasons to offend (Agnew, 1990; J. Miller, 1998; Steffensmeier & Allan, 1996), the current study also assessed for possible sex differences. Supporting the findings uncovered in qualitative studies (Brookman et al., 2007; J. Miller, 1998), there were more similarities than differences between males and females. Specifically, prior drug use decreased the likelihood of offending out of anger/revenge (relative to impulsivity) among both males and females regardless of their mental health status. This was unexpected as

mental health had increased anger motivations in prior analyses, showing an interesting effect of drug use on this relationship. In addition, prior research suggested that females experiencing strains are more likely than males to internalize their emotions and as a result are more likely to suffer from anxiety and depression, whereas males are more likely to respond with hostility (Broidy & Agnew, 1997; Conger et al., 1993; Rosenfeld, 1980; Turner et al., 1995). As the current study's findings show different conclusions, it highlights the unique joint effects of mental health issues and drug use on juveniles' self-reported reasons for offending.

An additional similarity between the two sexes was that while prior drug use failed to have a significant effect on offending out of excitement for males or females with mental health issues, it did increase the likelihood of offending for excitement among those without mental health issues. On this score, Silver et al. (2008) noted that impaired judgment is a symptom of mental illness and that impaired judgment and the combination of mental illness and impaired judgment could lead to risky behaviors. Furthermore, prior drug use also increased the likelihood of offending to gain peer status relative to offending out of impulse among males with a mental health issue but failed to have a significant effect on the other subsamples. These findings represent the only results where there was a difference in the impact of prior drug use among those with and without a mental health issue. The differential effects of prior drug use suggest that mental health issues may decrease the individual's desire for excitement while increasing his or her desire for peer status (among males), relative to offending out of impulse. The increased desire for peer status and social acceptance among transition-age youth is well documented (Zajac et al., 2013), and it is not surprising that the youth in the current study valued acceptance from peers over excitement with regard to motivations to offend. As transition-age youth may seek peer acceptance in antisocial ways (i.e., joining gangs), programs to support justice-involved youth who have mental illnesses often focus on peer support from non-justice-involved youth via peer mentorship and peer support groups (Zajac et al., 2013).

Limitations and Future Directions

As the current study utilized measures from the PACT Full Assessment to assess reasons for offending among justice-involved youthful offenders, the generalizability of our findings is limited. For example, our sample consisted of those aged 16 years and older. Therefore, caution should be used in generalizing these results to all youth in the juvenile justice system. A second limitation is that some higher risk youth were not included in the analysis as it was not possible to geocode their address for our concentrated disadvantage

indicator, due to missing data. As those excluded due to missing geographical data were more likely to have mental health problems, less likely to be Black, and more likely to have parents with substance use problems than retained youth, our results are likely to be on the conservative side with respect to offending risk.

In addition, the coding of some of our variables was limited in some respects. The serious mental health problem measure was coded dichotomously in the original data, potentially obscuring important differences between different types of mental health issues. Similarly, the drug history measure failed to differentiate between types of drug use as well as the frequency of use. While it did discriminate between drug use and drug abuse, these other contextual differences may also be important in their effects on reasons for offending. It is also important to note that these two measures of mental health and drug use have unknown validity, though the PACT Assessment in general has been found to be valid in predicting recidivism (Baglivio, 2009; Baglivio & Jackowski, 2013; Baird et al., 2013; Winokur-Early et al., 2012). Furthermore, as we noted previously, the reasons for offending measure required the youth to select one primary reason for offending among a specific set. We recognize there may be overlapping reasons why youth offend and potentially different reasons for different types of offenses. Unfortunately, this level of detail was not available, though our measure did include a wide variety of different potential reasons for offending including many that have been identified in previous research. Some concern regarding the weak correlations between our central independent variables and the reasons for offending should also be acknowledged and underscores the importance of replicating this research with other samples and potentially alternative operationalizations of each of these concepts.

Along with addressing these limitations, a number of additional avenues should be pursued in further research. First, our analyses revealed interesting race/ethnicity differences. For instance, Hispanic respondents were more likely to report offending for peer status than those of other ethnicities. Future research regarding race/ethnicity and reasons for offending is warranted. Perhaps cultural norms and expectations differ for youth based on level of acculturation and familial characteristics. Second, more research on female offenders and reasons for offending is needed; perhaps different measures would yield different results. These areas of future research may assist with treatment planning, mental health counseling, and substance abuse counseling for female youth. Third, although our study was able to measure several types of serious mental illnesses, it would be instructive to assess the impact of specific mental illness diagnoses as well as additional diagnoses our data did not include, such as conduct disorder and behavioral addictions. Finally,

exploring the joint role of mental health and substance abuse is worthy of future research, as contrasting effects on reasons for offending were revealed here but should be replicated in other samples. For instance, it would be instructive to assess how similar the impact of these issues are on adult samples as well as those that have not been adjudicated for their offenses. In addition, it is possible that these factors may have varying effects on different types of offending.

Enhancing our understanding of the impact that mental health and substance abuse have on motivations to offend will likely provide researchers with more nuanced understanding of why juveniles offend. In that regard, further insight into offender motives could be used to refine criminological frameworks that are much broader in their theoretical construct specifications. As well, findings from this line of research will provide an important foundation for individualized treatment planning, multidisciplinary treatment teams, and rehabilitative efforts for justice-involved youth (Wattanaporn & Holtfreter, 2014). More specifically, with males and females who have a history of substance use, counselors and psychologists can focus on reasons for offending (e.g., monetary gain or status) and methods to assist youth with understanding lapse, relapse, and offense cycles as they relate to substance abuse and criminal recidivism.

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Notes

1. Supplemental analyses were estimated that utilized two distinct drug use measures. The first was a dichotomous variable representing if the respondent ever used drugs in the past. The second measure was a summative measure of the number of issues the respondent experienced due to his or her past drug use. These measures were simultaneously included in the supplemental analyses, and the results were substantially the same. The results are available upon request.
2. Although separate regression equations were estimated using prior alcohol use as a predictor (measured analogously to drug use), these models were not presented as the findings were insignificant, perhaps owing to the weak correlation ($r = -.01$) between alcohol use and reasons for offending. These results are available upon request.

3. An assessment of the variance inflation factors (VIFs; using ordinary least squares [OLS] regression models) revealed no evidence of multicollinearity as all mean VIF values were less than 2.0 (Stevens, 2001).
4. In supplemental analyses, the reference category was rotated so each of the possible reasons to offend was used as the reference group. To give further context to our findings, we will note the results when money/material gain was used as the reference group as this was the second most prevalent reason given by our sample. The other results are available upon request from the corresponding author. Using money/material gain as the reference category, having a history of serious mental health problems was positively related to anger, impulse, and sexual desire motivations and negatively associated with peer status reasons compared with money/material gain reasons. Prior drug use decreased the likelihood of offending due to anger, impulse, sexual desire, excitement, or peer status, all relative to money/material gain. These results were substantially similar when the two independent variables were combined in the same model among the full sample and among males. Among females, mental health problems were positively associated with an increase in anger/revenge relative to money/material gain while controlling for prior drug use. On the contrary, prior drug use was negatively associated with anger/revenge, impulse, sexual desire, and peer status among females while controlling for mental health problems. Among males with a history of mental health problems, money/material reasons were more likely to be a stated motivation than anger, impulse, sexual desire, excitement, or peer status. These results were substantially similar among males without a history of mental health problems. Relative to money/material gain reasons for offending, females with a history of mental health problems were less likely to be motivated by anger, impulse, and peer status. Females without such a history were less likely to denote anger or impulsivity as a motivation to offend relative to money/material gain.

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