

# The Criminology of Homicidal Ideation: Associations with Criminal Careers and Psychopathology among Federal Correctional Clients

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**Abstract** Homicidal ideation is a clinical construct that is almost entirely absent from the criminological literature. The current study examines the criminology of homicidal ideation using archival data from a population of federal supervised release felons from the Midwestern United States. ANOVA, Poisson regression, negative binomial regression, and epidemiological tables indicated that 12 % of offenders experienced evidence of homicidal ideation and these offenders perpetrated more murders, attempted murders, kidnappings, armed robberies, and aggravated assaults, had more severe and extensive psychopathology, and were more likely to be chronic offenders. Homicidal ideation is an important construct that should be studied more not only for its association with murder, but as an omnibus risk factor for severe criminality.

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## Introduction

Homicidal ideation, defined as thoughts about perpetrating lethal violence regardless of whether a homicide is actually committed, is with few exceptions (e.g., Murray, Obsuth, Eisner, & Ribeaud, 2016; Reisner, McGee, & Noffsinger, 2003) almost completely absent from the criminological literature.<sup>1</sup> Instead, most of the scholarly literature on homicidal ideation stems from research in psychiatry, psychopharmacology, forensic science, and evolutionary psychology. The aim of the current study is to “introduce” homicidal ideation to the criminological literature and empirically explore the association between homicidal ideation and criminal careers among a population of federal supervised release clients in the United States.

## Conceptual Background

Consistent with the paucity of criminological research on homicidal ideation, criminological theories are mostly silent about the construct. Perhaps the closest a criminological theory gets to conceptualizing homicidal ideation is Anderson’s (1999) subcultural code of the street hypothesis which posits that urban, African American males employ violence as a way to establish, maintain, and defend social status. Anderson’s theory is sociological and distinctions are drawn between conventional individuals known as “decent people” who do not subscribe to the street code and thus refrain from criminal offending and antisocial individuals known as “street people” who do subscribe to the street code and who are at greater risk for homicide perpetration and victimization. The street code is not a theory of homicide per se, but does provide a framework whereby homicidal ideation is culturally valued and at times even potentiated in the event of interpersonal disputes that escalate to homicide.

In contrast to the theoretical scene in criminology, in evolutionary psychology, Duntley and Buss’ (2011) homicide adaptation theory explicitly discusses homicidal ideation. According to Duntley and Buss (2011), homicidal ideation is part of an evolved psychological process that functions to mobilize attention, rehearse scenarios where homicide is a behavioral option, calculate the consequences of it, and motivate behavior. More specifically, they theorize that homicidal ideation allows individuals to 1) contemplate situations where perpetrating a homicide is appropriate such as direct threats to self or kin, 2) catalog homicide-relevant information, 3) estimate the formidability of potential victims, 4) forecast likely consequences of murder, and 5) cognitively simulate the act of killing. Although homicidal ideation is portrayed as a natural consequence of human phylogenetic development, it does not usually manifest in homicide. Instead, Duntley and Buss (2011, p. 407) suggested that, “In the majority

<sup>1</sup> The authors acknowledge that sexual homicide offenders are an exception to this statement. We excluded sexual homicide offenders from this discussion because their lethal violence is inextricably linked to sexual deviancy or paraphilias, including sexual sadism (see, Malmquist, 2006; Stefanska et al., 2015; Woodworth et al., 2013). Our coverage of homicidal ideation is meant in a general criminological sense and where homicidal ideation is not secondary to another severe comorbid condition.

of cases, the large costs of homicide are hypothesized to inhibit acting on homicidal urges and steer human behavior in the direction of non-lethal alternatives to killing.” Indeed, the next section indicates that homicidal ideation, though often superficial, short-lived, and insincere is surprisingly prevalent among various social groups.

## Empirical Background

Virtually everyone has uttered language that conveys some elements of homicidal ideation (e.g., “I could have killed him”). In most cases, this language is merely a figure of speech and should not be taken seriously. For others, homicidal ideation is more substantial and enduring.<sup>2</sup> For example, Kenrick and Sheets (1993) surveyed university students and found that between 73 % and 79 % of males and 58 % and 66 % of females had homicidal fantasies or ideation. Most homicidal ideation was caused by interpersonal problems, such as a personal threat, public humiliation, lover’s quarrel, family argument, or dispute relating to traffic, work, or money. They also reported sex differences in homicidal ideation with females more likely to fantasize about killing a significant other or family member and males more likely to fantasize about killing a sexual rival, acquaintance, or stranger. Males were also nearly three times more likely than females to frequently experience homicidal ideation and half as likely as females to never experience homicidal ideation. Other studies reported similar causes of homicidal ideation among general population samples (Crabb, 2000; Harter, Low, & Whitesell, 2003). Research has also revealed homicidal ideation beyond undergraduate samples. For instance, a qualitative study of 21 caregivers of relatives with dementia found that two of the participants actively contemplated the homicide of their care recipient and four caregivers expressed passive desire for the death of their care recipient (O’Dwyer, Moyle, Taylor, Creese, & Zimmer-Gembeck, 2015).

Recently, Murray et al. (2016) examined homicidal ideation among a sample of nearly 1700 youth selected from the Zurich Study on the Social Development of Children and Youths. The authors found that a homicidal ideation item (“I thought about killing someone I know”) was significantly correlated with other violent ideation relating to hitting others, committing theft by force, and intimidating others. Together these items comprised a latent construct of aggressive ideation. Moreover, they found that aggressive ideation including homicidal ideation was highly stable across adolescence and significantly correlated with deficits in self-control and greater aggressive behaviors/delinquency.

Although homicidal ideation among the general population is fairly prevalent it is usually a matter of pure fantasy that quickly occurs in the context of an interpersonal dispute and then dissipates. Consistent with homicide adaptation theory, homicidal ideation is easily discounted because the ramifications of actually perpetrating a homicide are simply too great. Among clinical and forensic populations; however, individuals have greater psychopathology and evince more antisocial conduct than

<sup>2</sup> To illustrate, Horton and Johnson (1977) described their treatment of an adult male who had intense homicidal ideation toward his estranged wife. The homicidal ideation and rumination about killing his wife were so pervasive and crippling that the patient lost 30 pounds in five months, developed insomnia, and was unable to work more than 3 h in a day. The application of thought-stopping and covert assertion significantly reduced the patient’s homicidal ideation.

those in the general population (DeLisi, 2005, 2016a; Moffitt, 1993; Vaughn, DeLisi, et al., 2011; Vaughn et al., 2014), thus their homicidal ideation is potentially more problematic. That research is examined next.

A diverse literature has documented homicidal ideation among clinical and forensic samples of individuals (e.g., maternal filicide offenders, violent psychiatric patients, children with extensive trauma and abuse experiences, and others) characterized by mental illness, high psychopathology, acute antisocial behavior, or in some cases, all of these conditions (Altman et al., 1971; Asnis, Kaplan, Hundorfean, & Saeed, 1997; Friedman, Sorrentino, Stankowski, Holden, & Resnick, 2008; Lewis et al., 1985; Schlesinger, 2007; Thompson & Beckson, 2004). The etiology of homicidal ideation has been attributed to multiple sources. For instance, there is evidence that homicidal ideation is predated by adverse childhood experiences. For example, in an investigation of abused adolescents admitted to a short-term chemical dependency clinic, Cavaola and Schiff (1988) reported considerable evidence of homicidal ideation among children who had been abused. Nearly 67 % of abused youth had evidence of homicidal ideation compared to 18 % of those who were chemically dependent and nearly 17 % of those who were not chemically dependent (the latter groupings did not have abuse history). The prevalence of homicidal ideation among youth exposed to various forms of abuse was quite high. Nearly 74 % of physically abused, nearly 59 % of sexually abused, and nearly 62 % of incest abused youths experienced homicidal ideation. Others have found that homicidal ideation among youth was associated with trauma exposure, parental violence, and personality disorder (Pfeffer, 1980).

Homicidal ideation can also be a product of psychosis, disordered thinking, and substance abuse particularly among offenders with schizophrenia (Fazel, Gulati, Linsell, Geddes, & Grann, 2009; Rodway et al. 2011; Tiihonen et al., 1996). In their study of persons with schizophrenia, some of whom committed murder and others who did not, homicidal ideation was a significant factor among homicide offenders (Hanlon, Coda, Cobia, & Rubin, 2012). Other research among schizophrenia patients found that global functioning was negatively associated with homicidal ideation and mania and disturbed thoughts were positively associated with homicidal ideation (Schwartz, Petersen, & Skaggs, 2001).

The case study of “Mr. X” provided important insights into the psychopathology of an individual who was involuntarily hospitalized for 8 months due to acute homicidal ideation (Reisner et al., 2003). The patient self-reported that he was a budding serial killer, had extensive journal entries of homicidal ideation and fantasies driven by anger, hate, rage, and depression, and had created a hit list of victims and procured a lethal weapon. The individual had a history of mood swings, hypomania, and depression, had a family history of bipolar disorder, and had incurred a significant head injury. He had no prior criminal history, was mildly psychopathic (PCL-R score of 17), and had symptoms of Borderline, Schizoid, and Paranoid Personality Disorders, and cannabis abuse. Mr. X received medication (mood stabilizers and antidepressants), group and individual psychotherapy, milieu therapy, and substance abuse treatment and these modalities resolved his homicidal ideation. He was released to a group home and at a 4-month follow-up was still stable and was not experiencing homicidal ideation.

Research on homicide offenders has shown that many individuals who ultimately perpetrate homicide have extensive experiences of homicidal ideation often coupled

with equally pervasive internalizing symptoms.<sup>3</sup> These offenders have deep-seated feelings of inadequacy, persecution, and global worthlessness and their lethal outbursts are an attempt to destroy others that the killer feels have rejected them (Asnis, Kaplan, Hundorfean, & Saeed, 1997; Lewis et al., 1985; McGurk, 1981; Murray, 2015; Myers & Scott, 1998; Schlesinger, 2007). Myers and Blashfield (1997) found that two-thirds of juvenile sexual homicide offenders experienced extensive homicidal ideation often in the form of violent sexual fantasies. For example, one youth who presented with ADHD, bipolar disorder, conduct disorder, obsessive-compulsive disorder, overanxious disorder, separation anxiety disorder and symptoms of Paranoid, Schizotypal, and Avoidant Personality Disorder reported being preoccupied with homicidal fantasies and ideation that directly motivated his sexual homicide. Similarly, Johnson and Becker (1997) presented nine clinical cases of adolescents who presented with intense homicidal ideation and in some cases had already attempted murder. Two of the youth self-reported a completed homicide. All of these youth endorsed elaborate fantasies of becoming serial homicide offenders. Many had psychiatric problems including depression, ADHD, Conduct Disorder, and substance abuse.

## Current Aim

The current research questions are whether homicidal ideation exists among correctional clients and to what degree homicidal ideation is associated with the criminal career and various forms of psychopathology. To answer these questions, the current study empirically examines the prevalence, correlates, and associations of homicidal ideation to multiple aspects of the criminal career, specific forms of violence, and psychopathology among a total population of federal correctional clients within a jurisdiction in the central United States. To our knowledge, this is the first criminological study that utilizes homicidal ideation as its central focus and relates it to versatile forms of criminal offending among a large sample.

## Method

### Participants and Procedures

The current study is based on archival from the total population of 865 active clients in a federal probation jurisdiction in the Midwestern United States (two clients had incomplete data thus the analytical sample is 863). All clients are on supervised release after a term of supervision in the Bureau of Prisons. The sample is 84 % male and 16 % female. The preponderance (79.4 %) of clients are white, 20.6 % are African American. Ninety two percent are non-Hispanic and 8 % are Hispanic and the mean age was 44 years. The most prevalent conviction offenses were distribution of

<sup>3</sup> Biographies of many infamous homicide offenders including Charles Cullen, Joseph Vacher, Jesse Pomeroy, Howard Unruh, Richard Ramirez, Richard Kuklinksi, Albert DeSalvo and many others document the pervasiveness and at times specificity of homicidal ideation (see, Ramsland, 2005; Graever, 2013; Schechter, 2000, 2003; Starr, 2010).

methamphetamine (35 %), felon in possession of firearm (13 %), bank fraud, money laundering, and/or identity theft (13 %), distribution of cocaine base (crack) (12 %), possession or manufacturing of child pornography (6.5 %), distribution of marijuana (6 %), use of firearm during a drug trafficking offense (4.5 %), and distribution of cocaine (3.6 %).

Data collection occurred via two procedures. First, all data in the client's PACTS file were electronically extracted and converted to an Excel spreadsheet. PACTS is the Probation/Pretrial Services Automated Case Tracking System which is a case management platform used in all 94 federal districts to track federal defendants and offenders. This electronic extraction contained information on 110 variables including demographics, case information, conditions, federal post-conviction risk assessment (PCRA) and assorted risks, criminal history indices, and other documents relevant to the client's social and criminal history.

Second, information on 108 additional variables was manually collected by the senior author. These variables were extracted from presentence reports (PSR), offender dossiers from the Bureau of Prisons, local, state, and national criminal histories, confidential psychological and psychiatric reports, treatment reports, and other relevant documents located in PACTS. The additional variables included conviction offense, measures of juvenile and criminal history, substance abuse history, onset, and diagnoses, personality disorders, criminality, victimization and abuse history, adverse childhood experiences, socioeconomic indicators, and summary measures of activity and misconduct during Bureau of Prisons confinement. These variables were coded and entered into the Excel spreadsheet. Upon completion, the data were transferred into Stata/IC 12.1 for data analyses.

## Measures

**Homicidal Ideation** Homicidal ideation was measured based on information from psychological reports and the client's PSR where there was evidence that the offender had experienced homicidal thoughts. Examples included the offender self-reporting to clinicians and/or criminal justice practitioners that he or she was experiencing homicidal thoughts, homicidal statements made to family members and/or victims, and explicitly articulating homicidal statements during the perpetration of a crime.<sup>4</sup> Homicidal ideation was coded on a 3-point scale with no evidence = 0, some evidence = 1, and definite evidence = 2. The prevalence of homicidal ideation was 12 %. Of these, 3 % exhibited some evidence of homicidal ideation and nearly 9 % displayed definite evidence of homicidal ideation. Eighty eight percent of clients exhibited no indication of homicidal ideation.

**Covariates** Several parameters of the criminal career were used including arrest onset ( $\bar{x} = 23.57$ ,  $SD = 12.46$ , range = 6–78), juvenile arrests or police contact ( $\bar{x} = 2.09$ ,

<sup>4</sup> In the homicide literature (Chan et al., 2010; Liem, 2010; Liem & Roberts, 2009; McPhedran et al., 2015; Panczak, Geissbühler, Zwahlen, Killias, Tal, & Egger, 2013; Sturup & Caman, 2015), offenders who perpetrate mass murders and those who perpetrate murder-suicide commonly experience both homicidal and suicidal ideation which helps to explain why many of these offenders commit suicide after their homicidal acts. In this regard, homicidal ideation co-occurs with suicidal ideation. In the current data, homicidal ideation and suicidal ideation were not significantly correlated ( $r = .046$ ,  $p = .179$ ).

SD = 4.93, range = 0–59), juvenile confinements ( $\bar{x}$  = .26, SD = .75, range = 0–7), total arrest charges ( $\bar{x}$  = 14.31, SD = 14.75, range = 1–97), total convictions ( $\bar{x}$  = 8.51, SD = 8.26, range = 1–67), total prison sentences ( $\bar{x}$  = 2.33, SD = 2.06, range = 1–16), probation revocations ( $\bar{x}$  = .67, SD = 1.20, range = 0–12), and parole revocations ( $\bar{x}$  = .13, SD = .64, range = 0–8). It is important to control for criminal career measures when examining offending outcomes (DeLisi & Piquero, 2011; DeLisi & Scherer, 2006; Jennings, Piquero, Rocque, & Farrington, 2015; Jennings, Rocque, Fox, Piquero, & Farrington, 2016; Piquero, Jennings, & Barnes, 2012; Vaughn, DeLisi, Beaver, & Howard, 2009)

**Psychopathology** Lifetime diagnoses for Oppositional Defiant Disorder ( $\bar{x}$  = .25, SD = .65), Conduct Disorder ( $\bar{x}$  = .41, SD = .80), Antisocial Personality Disorder ( $\bar{x}$  = .54, SD = .86), Intermittent Explosive Disorder ( $\bar{x}$  = .06, SD = .33), and Schizophrenia ( $\bar{x}$  = .03, SD = .21). Diagnoses were based on DSM-IV-TR criteria and based on official psychological and psychiatric reports in the client's PACTS. All disorders were scored on a 3-point scale with no symptoms = 0, symptoms but not enough for diagnosis = 1, met diagnostic criteria = 2. These forms of psychopathology are significantly associated with offending (Dodge et al., 2014; Eronen et al., 1996; Fazel et al., 2010; Lewis et al. 1985; Malmquist, 2006; Moffitt, 1993) and thus should be included as controls.

**Demographic Controls** Race (white = 0, black = 1) and sex (female = 0, male = 1) were included as dichotomous control variables given their association with offending (DeLisi & Vaughn, 2016; Piquero, Jennings, Diamond, & Reingle, 2015).

**Dependent Variables** In Poisson and negative binomial regression models, counts for total arrest charges for murder ( $\bar{x}$  = .02, SD = .15, range = 0–2), attempted murder ( $\bar{x}$  = .19, SD = .69, range = 0–7), kidnapping ( $\bar{x}$  = .03, SD = .20, range = 0–2), armed robbery ( $\bar{x}$  = .21, SD = .99, range = 0–11), and aggravated assault ( $\bar{x}$  = .61, SD = .154, range = 0–14) were used. In the epidemiological tables, three dependent variables were used: 90th percentile for career arrest charges ( $\bar{x}$  = .11, SD = .31, range = 0–1), 90th percentile for assault-related arrests which including aggravated assault, simple assault, and domestic assault ( $\bar{x}$  = .12, SD = .32, range = 0–1), and having met lifetime diagnostic criteria for ODD, CD, ASPD, and ADHD ( $\bar{x}$  = .09, SD = .28, range = 0–1).

## Analytical Plan

Three analytical techniques were used. First, multivariate analysis of variance (ANOVA) was used to compare clients with no, some, and definite evidence of homicidal ideation on criminal careers and psychopathology. Second, multivariate Poisson or negative binomial regression models were used to estimate the effects of homicidal ideation, sex, race, Oppositional Defiant Disorder, Conduct Disorder, Antisocial Personality Disorder, Intermittent Explosive Disorder, and Schizophrenia on five serious violent offenses. Poisson regression is intended for count outcomes for relatively rare events such as the most serious crimes. Diagnostics were performed on all Poisson models and the Pearson goodness-of-fit values for murder (750.07,  $p$  = .98), kidnapping (665.53,  $p$  = 1.0), and attempted murder (740.35,  $p$  = .99) were not

significant which indicated that the Poisson estimation was most appropriate. Tests for armed robbery and aggravated assault were significant which indicated overdispersion thus the negative binomial estimator was used. Third, epidemiological tables of odds were used to compare homicidal ideation for three binary outcomes. Epidemiological tables of odds are useful for case–control and cross-sectional data to examine the odds of an outcome occurring, such as being in the 90th percentile on arrest charges, based on score on an underlying variable (homicidal ideation). A table of descriptive statistics for all study variables is shown in Table 1.

## Findings

### ANOVA for Homicidal Ideation, Criminal Careers, and Psychopathology

Table 2 contains the ANOVA model comparing clients with no evidence, some evidence, and definite evidence of homicidal ideation across various criminal career

**Table 1** Descriptive statistics for study variables

Variable	Mean	SD	Range
Homicidal Ideation	.21	.58	0–2
Oppositional Defiant Disorder	.25	.65	0–2
Conduct Disorder	.41	.80	0–2
Antisocial Personality Disorder	.54	.86	0–2
Intermittent Explosive Disorder	.06	.33	0–2
Schizophrenia	.03	.21	0–2
Arrest onset	23.57	12.46	6–78
Juvenile arrests	2.09	4.93	0–59
Juvenile confinements	.26	.75	0–7
Total arrest charges	14.31	14.75	1–97
Total convictions	8.51	8.26	1–67
Total prison sentences	2.33	2.06	1–16
Probation revocations	.67	1.2	0–12
Parole revocations	.13	.64	0–8
Murder charges	.02	.15	0–2
Attempted murder charges	.19	.69	0–7
Kidnapping charges	.03	.20	0–2
Armed robbery charges	.21	.99	0–11
Aggravated assault charges	.61	1.54	0–14
Chronic arrest charges	.11	.31	0–1
Chronic assault charges	.12	.32	0–1
Multiple psychopathology	.09	.28	0–1
Sex	.97	.17	0–1
African American	.19	.39	0–1



**Table 2** ANOVA for homicidal ideation, criminal careers, and psychopathology

Variable	No Evidence ( <i>n</i> = 761, 88.2 %)	Some Evidence ( <i>n</i> = 26, 3 %)	Definite Evidence ( <i>n</i> = 76, 8.8 %)	Omnibus <i>F</i>	<i>p</i>
Arrest Onset	24.65	17.27	14.87	26.16	<.0001
Juvenile Arrests	1.66	3.42	5.91	28.25	<.0001
Juvenile Confinements	.19	.58	.87	32.60	<.0001
Total Arrest Charges	11.80	31.92	33.34	118.04	<.0001
Total Convictions	7.10	17.04	19.80	123.12	<.0001
Total Prison Sentences	2.04	4.08	4.66	77.30	<.0001
Probation Revocations	.57	1.31	1.39	20.91	<.0001
Parole Revocations	.09	.42	.45	14.03	<.0001
Oppositional Defiant Disorder	.18	.31	.91	47.77	<.0001
Conduct Disorder	.29	1.0	1.45	96.84	<.0001
Antisocial Personality Disorder	.38	1.54	1.82	154.59	<.0001
Intermittent Explosive Disorder	.02	.15	.41	53.84	<.0001
Schizophrenia	.02	0	.09	4.18	.02

parameters and psychopathology. There are clear mean differences across groups such that clients with no evidence of homicidal ideation displayed the least severe criminal careers, those with some evidence of homicidal ideation displayed moderate criminal careers, and those with definite evidence of homicidal ideation displayed the most severe criminal careers. The mean age of arrest onset  $F(2, 860) = 26.16, p < .0001$ ) was nearly a decade earlier among those with homicidal ideation (14.9 years) compared to those without it (24.7 years). Significant differences were found for juvenile arrests  $F(2860) = 28.25, p < .0001$ ), juvenile confinements  $F(2860) = 32.60, p < .0001$ , total arrest charges  $F(2860) = 33.34, p < .0001$ , total convictions  $F(2860) = 19.80, p < .0001$ , total prison sentences  $F(2860) = 77.3, p < .0001$ , probation revocations  $F(2860) = 20.91, p < .0001$ , and parole revocations  $F(2860) = 14.03, p < .0001$ . Clients with some and definite evidence of homicidal ideation were not significantly different for total arrest charges, total convictions, probation revocations, and parole revocations. There were also significant differences in psychopathology for behavioral disorders including Oppositional Defiant Disorder  $F(2860) = 47.77, p < .0001$ , Conduct Disorder  $F(2860) = 96.84, p < .0001$ , Antisocial Personality Disorder  $F(2860) = 154.59, p < .0001$ , Intermittent Explosive Disorder  $F(2860) = 53.85, p < .0001$ , and Schizophrenia  $F(2860) = 4.18, p < .02$ .

### Poisson Regression Models for Murder, Kidnapping, and Attempted Murder

Tables 3, 4, and 5 display Poisson regression models for murder, kidnapping, and attempted murder. In all three models, homicidal ideation was significantly associated with the violent crimes of murder (coefficient = 1.61, SE = .44,  $z = 3.69, p < .001$ ), kidnapping (coefficient = 1.12, SE = .27,  $z = 4.20, p < .001$ ), and attempted murder (coefficient = 1.23, SE = .12,  $z = 10.63, p < .001$ ) and the effects were robust as z-scores ranged

**Table 3** Poisson regression model for murder

Variable	Coefficient	SE	z-score	95 % Confidence Interval
Homicidal Ideation	1.61	.44	3.69***	.76–2.46
Sex	−.75	1.19	−0.63	−3.09–1.59
Race	.52	.53	0.97	−.53–1.56
Antisocial Personality Disorder	−.87	.75	−1.16	−2.33–.60
Conduct Disorder	1.22	.67	1.83	−.09–2.54
Oppositional Defiant Disorder	.02	.30	0.06	−.57–.61
Intermittent Explosive Disorder	.05	.34	0.16	−.61–.72
Schizophrenia	−.10	.79	−0.13	−1.65–1.45
Model $\chi^2$	51.07***			
McFadden's Pseudo R <sup>2</sup>	.303			

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

from three to nearly 11 standard deviations above the mean. None of the other covariates were significantly associated with murder. Clients with Antisocial Personality Disorder were more likely to have arrests for kidnapping and attempted murder and African Americans had significantly more arrests for attempted murder.

### Negative Binomial Regression Models for Armed Robbery and Aggravated Assault

Tables 6, and 7 display negative binomial regression models for armed robbery and aggravated assault arrests. Homicidal ideation was strongly associated with armed

**Table 4** Poisson regression model for kidnapping/abduction

Variable	Coefficient	SE	z-score	95 % Confidence Interval
Homicidal Ideation	1.12	.27	4.20***	.59–1.64
Sex	15.08	1682.1	0.01	−3281.8–3311.9
Race	.13	.42	0.31	−.69–.95
Antisocial Personality Disorder	.82	.37	2.21*	.09–1.54
Conduct Disorder	−.08	.28	−0.29	−.63–.47
Oppositional Defiant Disorder	−.16	.26	−0.59	−.67–.36
Intermittent Explosive Disorder	−.62	.45	−1.37	−1.50–.27
Schizophrenia	−11.42	844.1	−0.01	−1665.7–1642.9
Model $\chi^2$	64.51***			
McFadden's Pseudo R <sup>2</sup>	.269			

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

**Table 5** Poisson regression model for attempted murder

Variable	Coefficient	SE	z-score	95 % Confidence Interval
Homicidal Ideation	1.23	.12	10.63***	1.0–1.46
Sex	.53	.61	0.87	-.67–1.72
Race	.53	.17	3.19***	.20–.85
Antisocial Personality Disorder	.52	.18	2.98**	.18–.87
Conduct Disorder	.24	.13	1.84	-.01–.50
Oppositional Defiant Disorder	-.06	.10	-0.67	-.25–.12
Intermittent Explosive Disorder	-.07	.12	-0.60	-.29–.16
Schizophrenia	-.51	.38	-1.33	-1.27–.24
Model $\chi^2$	460.96***			
McFadden's Pseudo R <sup>2</sup>	.454			

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

robbery (coefficient = .74, SE = .24,  $z = 3.06$ ,  $p < .01$ ) and aggravated assault (coefficient = .44, SE = .09,  $z = 4.56$ ,  $p < .001$ ). Other significant effects were also found. Males, African Americans, and clients with Antisocial Personality Disorder were significantly associated with armed robbery and clients with Antisocial Personality Disorder were significantly associated with aggravated assault.

### Epidemiological Tables of Odds

Figures 1, 2, and 3 display tables of odds results for being in the 90th percentile in career arrest charges, 90th percentile in career assault-oriented arrests, and having met

**Table 6** Negative binomial regression model for armed robbery

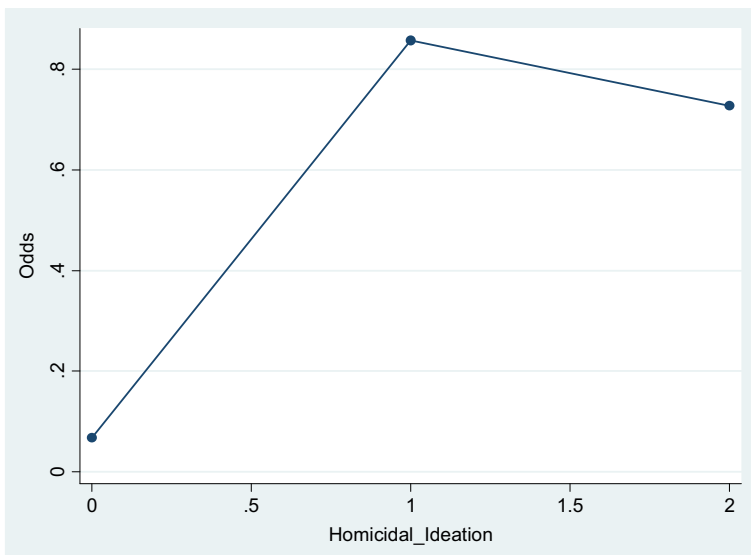
Variable	Coefficient	SE	z-score	95 % Confidence Interval
Homicidal Ideation	.74	.24	3.06**	.27–1.22
Sex	2.44	1.07	2.28*	.34–4.54
Race	1.49	.32	4.72***	.87–2.11
Antisocial Personality Disorder	.58	.25	2.32*	.09–1.07
Conduct Disorder	.34	.30	1.15	-.24–.93
Oppositional Defiant Disorder	-.33	.27	-1.23	-.86–.20
Intermittent Explosive Disorder	-.75	.41	-1.85	-1.56–.05
Schizophrenia	-16.97	6901.3	-0.00	-13543–13509
Model $\chi^2$	94.73***			
McFadden's Pseudo R <sup>2</sup>	.129			

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

**Table 7** Negative binomial regression model for aggravated assault

Variable	Coefficient	SE	z-score	95 % Confidence Interval
Homicidal Ideation	.44	.09	4.56***	.25–.63
Sex	.52	.30	1.72	–.07–1.11
Race	.19	.16	1.19	–.12–.49
Antisocial Personality Disorder	.97	.12	8.22***	.74–1.20
Conduct Disorder	.04	.12	0.34	–.20–.28
Oppositional Defiant Disorder	.11	.10	1.09	–.09–.32
Intermittent Explosive Disorder	.40	.14	2.93**	.13–.66
Schizophrenia	–.17	.29	–0.58	–.74–.40
Model $\chi^2$	311.41***			
McFadden’s Pseudo R <sup>2</sup>	.193			

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

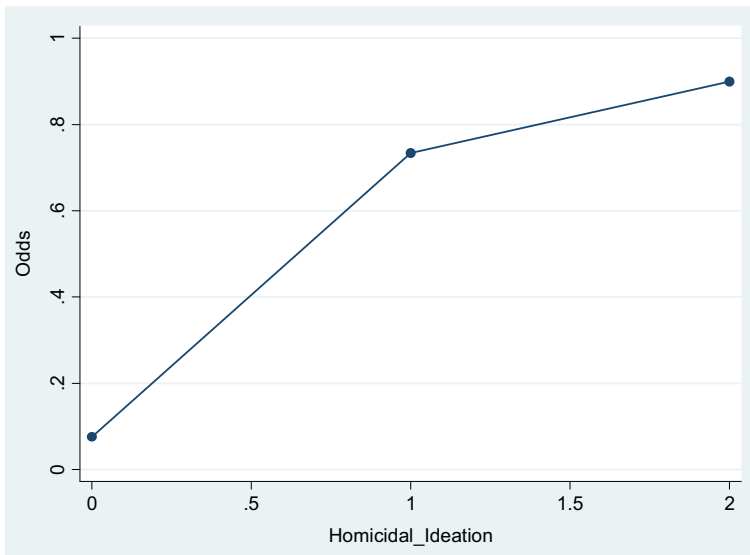


Homici~on	cases	controls	odds	[95% Conf. Interval]
0	48	713	0.06732	0.05026 0.09017
1	12	14	0.85714	0.39645 1.85317
2	32	44	0.72727	0.46125 1.14672

Test of homogeneity (equal odds):  $\chi^2(2) = 128.29$   
 $Pr > \chi^2 = 0.0000$

Score test for trend of odds:  $\chi^2(1) = 116.28$   
 $Pr > \chi^2 = 0.0000$

**Fig. 1** Table of odds for arrest charges at 90th percentile



Homici-on	cases	controls	odds	[95% Conf. Interval]
0	53	708	0.07486	0.05663 0.09896
1	11	15	0.73333	0.33683 1.59659
2	36	40	0.90000	0.57371 1.41186

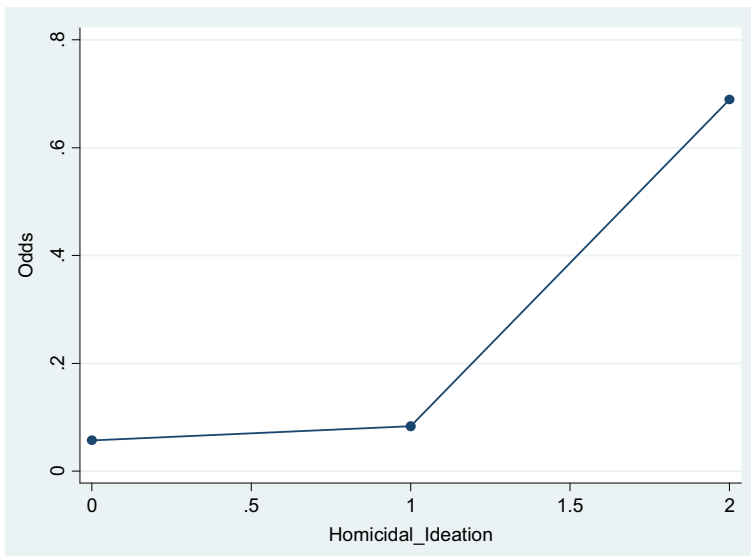
Test of homogeneity (equal odds):  $\chi^2(2) = 134.65$   
 $Pr>\chi^2 = 0.0000$

Score test for trend of odds:  $\chi^2(1) = 129.33$   
 $Pr>\chi^2 = 0.0000$

Fig. 2 Table of odds for assault charges at 90th percentile

diagnostic criteria for Oppositional Defiant Disorder, Conduct Disorder, ADHD, and Antisocial Personality Disorder. Clearly significant effects were found for all three outcomes. For arrest chronicity, those without homicidal ideation were 6.7 % likely to be in the 90th percentile on arrest charges. For those with some evidence homicidal ideation, the odds were 85.7 % and for those with definite evidence of homicidal ideation, the odds were 72.7 %. The test of homogeneity indicated that the odds of being in the 90th percentile were not equal across homicidal ideation status ( $\chi^2 = 128.29, p < .0001$ ) and the score test for trend of odds indicated the significant positive effect of homicidal ideation on chronic arrest activity ( $\chi^2 = 116.28, p < .0001$ ).

Similarly robust effects were seen for assault-oriented arrests at the 90th percentile. Clients without homicidal ideation were at low odds of chronic assault arrests at 7.5 %. The odds were significantly higher for those with some evidence of homicidal ideation (73.3 %) and definite evidence of homicidal ideation (90 %). The test of homogeneity indicated that the odds of chronic assaultive arrests were not equal across homicidal ideation status ( $\chi^2 = 134.65, p < .0001$ ) and the score test for trend of odds shown the significant positive effect of homicidal ideation on chronic assaultive behavior ( $\chi^2 = 129.33, p < .0001$ ).



Homici-on	cases	controls	odds	[95% Conf. Interval]
0	41	720	0.05694	0.04157 0.07800
1	2	24	0.08333	0.01969 0.35260
2	31	45	0.68889	0.43598 1.08850

Test of homogeneity (equal odds):  $\chi^2(2) = 110.37$   
 $Pr > \chi^2 = 0.0000$

Score test for trend of odds:  $\chi^2(1) = 103.19$   
 $Pr > \chi^2 = 0.0000$

**Fig. 3** Table of odds for psychopathology (ODD + CD + ADHD + ASPD)

Clients with greater homicidal ideation were significantly more likely to evince multiple behavioral disorders spanning childhood to adulthood. The odds of having been diagnosed with Oppositional Defiant Disorder, Conduct Disorder, ADHD, and Antisocial Personality Disorder was 5.7 %, 8.3 %, and 68.9 % for those with no, some, and definite evidence of homicidal ideation, respectively. The test of homogeneity ( $\chi^2 = 110.37, p < .0001$ ) showed that the odds of psychopathology were not equal across homicidal ideation status and the score test for trend of odds ( $\chi^2 = 103.19, p < .0001$ ) revealed a significant positive effect for homicidal ideation on psychopathology.

## Discussion

The current study explored a novel construct in criminology: homicidal ideation. Using a population of federal supervised release clients from the Midwestern United States, multiple analytical techniques revealed that homicidal ideation—although a relatively low-prevalence phenomenon—was powerfully associated with the criminal career,

psychopathology, and the extremes of offending. Several findings warrant discussion and hopefully serve to motivate future research.

First, although homicidal ideation expressly relates to homicide offending, it is broadly related to multiple forms of criminal offending. Offenders with greater homicidal ideation were not only more likely to have been arrested for murder, but also cognate violent offenses including attempted murder, kidnapping, armed robbery, and aggravated assault. In this sense, homicidal ideation resembles psychopathy in that it is a protean risk factor that is broadly related to diverse types of violent offending (DeLisi, 2016b). It is also important to observe that the association between homicidal ideation and violence extends to chronic non-lethal violence. The odds that clients with definite homicidal ideation would be in the 90th percentile for assault charges was 90 %, for those without homicidal ideation, the odds was just 7.5 %. Arrest narratives in the PSRs also showed the when homicidal offenders engaged in sub-homicidal violence, they nevertheless articulated homicidal statements particularly during incidents of domestic violence and reactive assaults. Approximately 10 % of clients uttered homicidal statements during the course of their crimes.

Second, in addition to its association with violent offending, offenders with greater homicidal ideation also evinced more extensive and severe criminal careers. The average offender with definite evidence of homicidal ideation was first arrested in early adolescence, was a chronic juvenile offender, amassed nearly three dozen arrest charges and nearly 20 convictions, was placed in confinement nearly five times, and repeatedly violated probation and parole sentences including revocation. The criminal careers paradigm has provided copious evidence that the most severe and pathological offenders evince the most extensive offending careers and engage in the most severe forms of crime (Barnes, 2014; DeLisi & Piquero, 2011; DeLisi et al., 2015; Doherty & Ensminger, 2014; Jennings & Reingle, 2012; Larson et al., 2015; Piquero, 2000; Piquero, Farrington, & Blumstein, 2003; Piquero, Jennings, & Barnes, 2012; Pizarro, Zgoba, & Jennings, 2011). However, to our knowledge, no prior criminal career study has incorporated homicidal ideation let alone shown that it is robustly associated with the most persistent and violent offending careers. Given its clinical value, criminal justice practitioners should pay attention to evidence that arrestees, correctional clients, or inmates exhibit homicidal ideation not only because it could be an attitudinal precursor of significant violence, but also because it is concomitant to sustained and enduring involvement in criminal offending and noncompliance with the criminal justice system.

Third, homicidal ideation was significantly associated with all forms of crime in the multivariate models and these effects withstood powerful controls for sex, race, and five forms of psychopathology that have demonstrated associations with serious antisocial behavior and criminal violence. Moreover, the significant effects for homicidal ideation suggest that the construct is not simply an “add on” to other behavioral disorders but instead exerts unique variance in its associations with serious criminal offending. However, the ANOVA models make clear that offenders with definite evidence of homicidal ideation are also offenders with the highest mean scores for Oppositional Defiant Disorder, Conduct Disorder, Antisocial Personality Disorder, Intermittent Explosive Disorder, and Schizophrenia.

Fourth, the multiple significant effects in the current study will hopefully motivate other researchers to incorporate and develop measures of homicidal ideation and utilize

it to inform other constructs in the literature. For example, ample research has shown that cruelty toward animals during childhood is a significant distal factor in the development of serious and violent criminal offenders (Arluke & Madfis, 2014; Tallichet & Hensley, 2004; Vaughn, Fu, et al., 2009, 2011) including multiple homicide offenders (Prentky et al., 1989; Wright & Hensley, 2003). It is generally recognized that for the latter group, torturing and killing animals is an age-graded behavioral “try out” for the offender’s true motivation which is to murder a human. For instance, Johnson and Becker’s (1997) study of homicidal youth found recurrent evidence intrusive, almost obsessive thoughts and fantasies about committing murder, and in some cases, committing suicide. The offenders in their sample killed and tortured various animals indeed one of the youth killed more than ten animals per day! To date, however, animal cruelty is generally studied as a behavioral indicator of severe psychopathology, but perhaps it should be seen as a product of homicidal ideation which the current study found was an independently strong correlate of criminal violence.

Fifth, homicide offenders disproportionately experience a range of negative emotions and cognitions including hostile attribution bias, hostility, anger, resentment, depression, and others (Brad, Coupland, & Olver, 2014; Lewis et al., 1985) in addition to mental disorders (Eronen et al., 1996; Fazel & Grann, 2004; Fazel et al., 2010; Lewis et al., 1985; Matejkowski et al., 2014). Future research should explore how and to what degree homicidal ideation is associated with these other negative individual-level features. There are many important research questions: Is homicidal ideation a broader cognitive style that drives pervasive anger and hostility? What is the association between hostile attribution bias and homicidal ideation? How early does homicidal ideation emerge and is it a downstream consequence of adverse childhood experiences? Is homicidal ideation associated with empathy deficits, and if so, are there neural underpinnings to the construct stemming from limbic system-frontal connectivity dysfunction?

The current study offered several strengths including a total population from a federal supervised release jurisdiction, comprehensive data access, and a rigorous quantitative analytical approach. Nevertheless, there are limitations that could be improved upon in future research. The main limitation is the single-item measure of homicidal ideation. Although it was based on archival data from multiple sources within the client’s PACTS (and thus there was not shared method variance), it would be preferable to have multiple measures of homicidal ideation. Similarly, these data are cross-sectional and thus it is unknown when the homicidal ideation developed, whether it antedated or postdated the criminal violence, and how stable the condition is across the criminal career. Given the newness of this research topic, there is considerable room for new and creative measurement of homicidal ideation.

## Conclusion

On multiple levels, homicide is the most costly criminal offense (Cohen, Piquero, & Jennings, 2010; DeLisi et al., 2010; Wickramasekera et al., 2015). Although most homicides are the outcome of reactive, expressive, impulsive actions, other homicides are instrumental and involve planning and contemplation of the act of murder. In other words, they entail homicidal ideation. As the current models indicate, homicidal



ideation is not only significantly associated with murder, but also with a range of serious, violent crimes, severe psychopathology, and many dimensions of the criminal career. It is an important clinical construct whose time has come for criminology to study it in greater detail.

## References

- Altman, H., Sletten, I. W., Eaton, M. E., & Ulett, G. A. (1971). Demographic and mental status profiles—patients with homicidal, assaultive, suicidal, persecutory and homosexual ideation. *Psychiatric Quarterly*, *45*(1), 57–64.
- Anderson, E. (1999). *Code of the street: Decency, violence, and the moral life of the inner city*. New York: W.W. Norton & Company.
- Arluke, A., & Madfis, E. (2014). Animal abuse as a warning sign of school massacres: A critique and refinement. *Homicide Studies*, *18*(1), 7–22.
- Asnis, G. M., Kaplan, M. L., Hunderfean, G., & Saeed, W. (1997). Violence and homicidal behaviors in psychiatric disorders. *Psychiatric Clinics of North America*, *20*(2), 405–425.
- Barnes, J. C. (2014). Catching the really bad guys: An assessment of the efficacy of the US criminal justice system. *Journal of Criminal Justice*, *42*(4), 338–346.
- Brad, C. A., Coupland, R. B., & Olver, M. E. (2014). An examination of mental health, hostility, and typology in homicide offenders. *Homicide Studies*, *18*(4), 323–341.
- Cavaiola, A. A., & Schiff, M. (1988). Behavioral sequelae of physical and/or sexual abuse in adolescents. *Child Abuse & Neglect*, *12*(2), 181–188.
- Chan, H. C. O., Heide, K. M., & Beauregard, E. (2010). What propels sexual murderers: A proposed integrated theory of social learning and routine activities theories. *International Journal of Offender Therapy and Comparative Criminology*, *55*(2), 228–250.
- Cohen, M. A., Piquero, A. R., & Jennings, W. G. (2010). Studying the costs of crime across offender trajectories. *Criminology & Public Policy*, *9*(2), 279–305.
- Crabb, P. B. (2000). The material culture of homicidal fantasies. *Aggressive Behavior*, *26*(3), 225–234.
- DeLisi, M. (2005). *Career criminals in society*. Thousand Oaks: Sage.
- DeLisi, M. (2016a). Career criminals and the antisocial life course. *Child Development Perspectives*, *10*(1), 53–58.
- DeLisi, M. (2016b). *Psychopathy as unified theory of crime*. New York: Palgrave Macmillan.
- DeLisi, M., Kosloski, A., Sween, M., Hachmeister, E., Moore, M., & Drury, A. (2010). Murder by numbers: Monetary costs imposed by a sample of homicide offenders. *Journal of Forensic Psychiatry & Psychology*, *21*(4), 501–513.
- DeLisi, M., & Piquero, A. R. (2011). New frontiers in criminal careers research, 2000–2011: A state-of-the-art review. *Journal of Criminal Justice*, *39*(4), 289–301.
- DeLisi, M., & Scherer, A. M. (2006). Multiple homicide offenders: Offense characteristics, social correlates, and criminal careers. *Criminal Justice and Behavior*, *33*(3), 367–391.
- DeLisi, M., & Vaughn, M. G. (2016). Correlates of crime. In A. Piquero (Ed.), *The handbook of criminological theory* (pp. 18–36). Malden: Wiley Blackwell.
- DeLisi, M., Vaughn, M. G., Salas-Wright, C. P., & Jennings, W. G. (2015). Drugged and dangerous: Prevalence and variants of substance use comorbidity among seriously violent offenders in the United States. *Journal of Drug Issues*, *45*(3), 232–248.
- Dodge, K. A., Bierman, K. L., Coie, J. D., Greenberg, M. T., Lochman, J. E., McMahon, R. J., et al. (2014). Impact of early intervention on psychopathology, crime, and well-being at age 25. *American Journal of Psychiatry*, *172*(1), 59–70.
- Doherty, E. E., & Ensminger, M. E. (2014). Do the adult criminal careers of African Americans fit the “facts”? *Journal of Criminal Justice*, *42*(6), 517–526.
- Duntley, J. D., & Buss, D. M. (2011). Homicide adaptations. *Aggression and Violent Behavior*, *16*(5), 399–410.
- Eronen, M., Hakola, P., & Tiihonen, J. (1996). Mental disorders and homicidal behavior in Finland. *Archives of General Psychiatry*, *53*(6), 497.
- Fazel, S., Buxrud, P., Ruchkin, V., & Grann, M. (2010). Homicide in discharged patients with schizophrenia and other psychoses: A national case-control study. *Schizophrenia Research*, *123*(2), 263–269.

- Fazel, S., & Grann, M. (2004). Psychiatric morbidity among homicide offenders: A Swedish population study. *American Journal of Psychiatry*, *161*(11), 2129–2131.
- Fazel, S., Gulati, G., Linsell, L., Geddes, J. R., & Grann, M. (2009). Schizophrenia and violence: systematic review and meta-analysis. *PLoS Medicine*, *6*(8), e1000120.
- Friedman, S. H., Sorrentino, R. M., Stankowski, J. E., Holden, C. E., & Resnick, P. J. (2008). Psychiatrists' knowledge about maternal filicidal thoughts. *Comprehensive Psychiatry*, *49*(1), 106–110.
- Graever, C. (2013). *The good nurse: A true story of medicine, madness, and murder*. New York: Twelve.
- Hanlon, R. E., Coda, J. J., Cobia, D., & Rubin, L. H. (2012). Psychotic domestic murder: Neuropsychological differences between homicidal and nonhomicidal schizophrenic men. *Journal of Family Violence*, *27*(2), 105–113.
- Harter, S., Low, S. M., & Whitesell, N. R. (2003). What have we learned from Columbine: The impact of the self-system on suicidal and violent ideation among adolescents. *Journal of School Violence*, *2*(3), 3–26.
- Horton, A. M., & Johnson, C. H. (1977). The treatment of homicidal obsessional ruminations by thought-stopping and covert assertion. *Journal of Behavior Therapy and Experimental Psychiatry*, *8*(3), 339–340.
- Jennings, W. G., Piquero, A. R., Rocque, M., & Farrington, D. P. (2015). The effects of binge and problem drinking on problem behavior and adjustment over the life course: Findings from the Cambridge Study in Delinquent Development. *Journal of Criminal Justice*, *43*(6), 453–463.
- Jennings, W. G., & Reingle, J. M. (2012). On the number and shape of developmental/life-course violence, aggression, and delinquency trajectories: A state-of-the-art review. *Journal of Criminal Justice*, *40*(6), 472–489.
- Jennings, W. G., Rocque, M., Fox, B. H., Piquero, A. R., & Farrington, D. P. (2016). Can they recover? An assessment of adult adjustment problems among males in the abstainer, recovery, life-course persistent, and adolescence-limited pathways followed up to age 56 in the Cambridge Study in Delinquent Development. *Development and Psychopathology*, *28*(02), 537–549.
- Johnson, B. R., & Becker, J. V. (1997). Natural born killers? The development of the sexually sadistic serial killer. *Journal of the American Academy of Psychiatry and the Law*, *25*(3), 335–348.
- Kenrick, D. T., & Sheets, V. (1993). Homicidal fantasies. *Ethology and Sociobiology*, *14*(4), 231–246.
- Larson, M., Vaughn, M. G., Salas-Wright, C. P., & DeLisi, M. (2015). Narcissism, low self-control, and violence among a nationally representative sample. *Criminal Justice and Behavior*, *42*(6), 644–661.
- Lewis, D. O., Moy, E., Jackson, L. D., Aaronson, R., Restifo, N., Serra, S., et al. (1985). Biopsychosocial characteristics of children who later murder: A prospective study. *American Journal of Psychiatry*, *142*(10), 1161–1167.
- Liem, M. (2010). Homicide–parasuicide: A qualitative comparison with homicide and parasuicide. *The Journal of Forensic Psychiatry & Psychology*, *21*(2), 247–263.
- Liem, M., & Roberts, D. W. (2009). Intimate partner homicide by presence or absence of a self-destructive act. *Homicide Studies*, *13*(4), 339–354.
- Malmquist, C. P. (2006). *Homicide: A psychiatric perspective* (2nd ed.). Washington, DC: American Psychiatric Association Publishing.
- Matejkowski, J., Fairfax-Columbo, J., Cullen, S. W., Marcus, S. C., & Solomon, P. L. (2014). Exploring the potential of stricter gun restrictions for people with serious mental illness to reduce homicide in the United States. *The Journal of Forensic Psychiatry & Psychology*, *25*(3), 362–369.
- McGurk, B. J. (1981). The validity and utility of a typology of homicides based on Megargee's theory of control. *Personality and Individual Differences*, *2*(2), 129–136.
- McPhedran, S., Eriksson, L., Mazerolle, P., De Leo, D., Johnson, H., & Wortley, R. (2015). Characteristics of homicide-suicide in Australia: A comparison with homicide-only and suicide-only cases. *Journal of Interpersonal Violence*. doi:10.1177/0886260515619172.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*(4), 674–701.
- Murray, A. L., Obsuth, I., Eisner, M., & Ribeaud, D. (2016). Shaping aggressive personality in adolescence: Exploring cross-lagged relations between aggressive thoughts, aggressive behavior and self-control. *Personality and Individual Differences*, *97*, 1–7.
- Murray, J. L. (2015). Suicidal–homicidal ideation in mass killers and transcendence. *Deviant Behavior*, *36*(7), 581–588.
- Myers, W. C., & Blashfield, R. (1997). Psychopathology and personality in juvenile sexual homicide offenders. *Journal of the American Academy of Psychiatry and the Law*, *25*(4), 497–508.
- Myers, W. C., & Scott, K. (1998). Psychotic and conduct disorder symptoms in juvenile murderers. *Homicide Studies*, *2*(2), 160–175.
- O'Dwyer, S. T., Moyle, W., Taylor, T., Creese, J., & Zimmer-Gembeck, M. J. (2015). Homicidal ideation in family caregivers of people with dementia. *Aging & Mental Health*, 1–8.

- Panczak, R., Geissbühler, M., Zwahlen, M., Killias, M., Tal, K., & Egger, M. (2013). Homicide-suicides compared to homicides and suicides: Systematic review and meta-analysis. *Forensic Science International*, 233(1), 28–36.
- Pfeffer, C. R. (1980). Psychiatric hospital treatment of assaultive homicidal children. *American Journal of Psychotherapy*, 34(2), 197–207.
- Piquero, A. (2000). Frequency, specialization, and violence in offending careers. *Journal of Research in Crime and Delinquency*, 37(4), 392–418.
- Piquero, A. R., Farrington, D. P., & Blumstein, A. (2003). The criminal career paradigm. *Crime and Justice*, 30, 359–506.
- Piquero, A. R., Jennings, W. G., & Barnes, J. C. (2012). Violence in criminal careers: A review of the literature from a developmental life-course perspective. *Aggression and Violent Behavior*, 17(3), 171–179.
- Piquero, A. R., Jennings, W. G., Diamond, B., & Reingle, J. M. (2015). A systematic review of age, sex, ethnicity, and race as predictors of violent recidivism. *International Journal of Offender Therapy and Comparative Criminology*, 59(1), 5–26.
- Pizarro, J. M., Zgoba, K. M., & Jennings, W. G. (2011). Assessing the interaction between offender and victim criminal lifestyles & homicide type. *Journal of Criminal Justice*, 39(5), 367–377.
- Prentky, R. A., Burgess, A. W., Rokous, F., Lee, A., Hartman, C., Ressler, R., et al. (1989). The presumptive role of fantasy in serial sexual homicide. *American Journal of Psychiatry*, 146(7), 887–891.
- Ramsland, K. (2005). *The human predator: A historical chronicle of serial murder and forensic investigation*. New York: Berkley Books.
- Reisner, A. D., McGee, M., & Noffsinger, S. G. (2003). The inpatient evaluation and treatment of a self-professed budding serial killer. *International Journal of Offender Therapy and Comparative Criminology*, 47(1), 58–70.
- Rodway, C., Norrington-Moore, V., While, D., Hunt, I. M., Flynn, S., Swinson, N., ... & Shaw, J. (2011). A population-based study of juvenile perpetrators of homicide in England and Wales. *Journal of Adolescence*, 34(1), 19–28.
- Schechter, H. (2000). *Fiend: The shocking true story of America's youngest serial killer*. New York: Pocket Books.
- Schechter, H. (2003). *The serial killer files*. New York: Ballantine.
- Schlesinger, L. B. (2007). Sexual homicide: Differentiating catathymic and compulsive murders. *Aggression and Violent Behavior*, 12(2), 242–256.
- Schwartz, R. C., Petersen, S., & Skaggs, J. L. (2001). Predictors of homicidal ideation and intent in schizophrenia: An empirical study. *American Journal of Orthopsychiatry*, 71(3), 379–384.
- Starr, D. (2010). *The killer of little shepherds*. New York: Vintage.
- Stefanska, E. B., Carter, A. J., Higgs, T., Bishopp, D., & Beech, A. R. (2015). Offense pathways of non-serial sexual killers. *Journal of Criminal Justice*, 43(2), 99–107.
- Sturup, J., & Caman, S. (2015). Homicide-suicide offences: description, classification and short case studies. *Journal of Criminal Psychology*, 5(3), 177–187.
- Tallichet, S. E., & Hensley, C. (2004). Exploring the link between recurrent acts of childhood and adolescent animal cruelty and subsequent violent crime. *Criminal Justice Review*, 29(2), 304–316.
- Thompson, C. R., & Beckson, M. (2004). A case of factitious homicidal ideation. *Journal of the American Academy of Psychiatry and the Law*, 32(3), 277–281.
- Tiihonen, J., Hakola, P., Eronen, M., Vartiainen, H., & Ryyänänen, O. P. (1996). Risk of homicidal behavior among discharged forensic psychiatric patients. *s*, 79(2), 123–129.
- Vaughn, M. G., DeLisi, M., Beaver, K. M., & Howard, M. O. (2009). Multiple murder and criminal careers: A latent class analysis of multiple homicide offenders. *Forensic Science International*, 183(1), 67–73.
- Vaughn, M. G., DeLisi, M., Gunter, T., Fu, Q., Beaver, K. M., Perron, B. E., et al. (2011). The severe 5 %: A latent class analysis of the externalizing behavior spectrum in the United States. *Journal of Criminal Justice*, 39(1), 75–80.
- Vaughn, M. G., Fu, Q., Beaver, K. M., DeLisi, M., Perron, B. E., & Howard, M. O. (2011). Effects of childhood adversity on bullying and cruelty to animals in the United States: Findings from a national sample. *Journal of Interpersonal Violence*, 26(17), 3509–3525.
- Vaughn, M. G., Fu, Q., DeLisi, M., Beaver, K. M., Perron, B. E., Terrell, K., et al. (2009). Correlates of cruelty to animals in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Psychiatric Research*, 43(15), 1213–1218.
- Vaughn, M. G., Salas-Wright, C. P., DeLisi, M., & Maynard, B. R. (2014). Violence and externalizing behavior among youth in the United States: Is there a severe 5 %? *Youth Violence and Juvenile Justice*, 12(1), 3–21.

- Wickramasekera, N., Wright, J., Elsey, H., Murray, J., & Tubeuf, S. (2015). Cost of crime: A systematic review. *Journal of Criminal Justice*, 43(3), 218–228.
- Woodworth, M., Freimuth, T., Hutton, E. L., Carpenter, T., Agar, A. D., & Logan, M. (2013). High-risk sexual offenders: An examination of sexual fantasy, sexual paraphilia, psychopathy, and offence characteristics. *International Journal of Law and Psychiatry*, 36(2), 144–156.
- Wright, J., & Hensley, C. (2003). From animal cruelty to serial murder: Applying the graduation hypothesis. *International Journal of Offender Therapy and Comparative Criminology*, 47(1), 71–88.

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