

## RESEARCH ARTICLE

# The Starkweather Syndrome: exploring criminal history antecedents of homicidal crime sprees<sup>1</sup>

Matt DeLisi<sup>a\*</sup>, Andy Hochstetler<sup>a</sup>, Aaron M. Scherer<sup>a</sup>, Aaron Purhmann<sup>a</sup> and Mark T. Berg<sup>b</sup>

<sup>a</sup>*Iowa State University, Ames, USA;* <sup>b</sup>*University of Missouri – St Louis, USA*

Little is known about the criminal backgrounds of offenders who commit homicidal crime sprees. Based on data from a purposive sample of 654 convicted murderers selected from eight states, this study compared the offense and criminal history of offenders who committed homicides during crime sprees and those who did not. Offenders who murdered during a crime spree were significantly more violent and criminally versatile than other homicide offenders during their instant homicide event. Offenders with prior convictions for robbery, child molestation, and multiple probation sentences were significantly at risk for homicidal spree offending. Implications of the findings and directions for future research are offered.

**Keywords:** homicide; spree killer; recidivism; criminal career; arrest

### Introduction

The murders by Charles Starkweather are among the most notorious incidents in the annals of American crime. On 1 December 1957, Starkweather, a 19-year-old Nebraska man, robbed a gas station at gunpoint, abducted and later murdered the store clerk. Less than two months later, on 21 January 1958, Starkweather, accompanied by his 14-year-old girlfriend Caril Ann Fugate, committed an array of criminal acts across Nebraska and Wyoming. Before his capture eight days later, Starkweather murdered 10 victims and committed other serious crimes such as rape, armed robbery, kidnapping, and auto theft. For these crimes, Starkweather was convicted, sentenced to death, and swiftly executed by electrocution in the Nebraska State Penitentiary on 14 June 1959.

The shocking crimes galvanized the country and turned attention to a troubling phenomenon, the homicidal crime spree. Although it has been variously defined, homicidal crime sprees entail violence that often occurs in concert with other criminal activity at two or more locations with little time lag between incidents. Those who commit these crimes are referred to generally or colloquially as spree murderers or spree killers. Besides its obvious lethality, crime sprees that include homicide elicit great fear among the populace because of the seemingly random, wanton nature of the violence. Spree killers like Starkweather, it is assumed, blazed along a spontaneously selected path leading many to conclude that the phenomenon was unpredictable. The current study investigates this point: can spree murder be predicted? Using a large sample of homicide offenders, some of whom killed during the course of a crime spree, this exploratory study sought to empirically examine criminal history antecedents of spree homicide offenders and whether they were different from other types of murderers. Unless otherwise indicated, terms such as homicide, murder, and killing are used as similes as are homicide offender, murderer, and killer.

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\*Corresponding author. Email: [delisi@iastate.edu](mailto:delisi@iastate.edu)

## Literature review

### *Temporal profiles*

Surprisingly little is known about offenders who commit murder during a crime spree and the preponderance of work that has investigated the topic centers on the somewhat ambiguous ways that the phenomenon has been defined. The seminal work developed by special agents from the Behavioral Science Unit at the FBI Academy created behavioral profiles of various homicide offenders. Although they did not employ the term 'spree killer' in this initial research, Hazelwood and Douglas (1980) theorized the 'disorganized asocial lust murderer' as an offender who killed in a frenzied non-methodical manner. Subsequent empirical research has supported this characterization. For instance, Ressler and Burgess (1985a) examined the crime scenes of disorganized murderers and found that their homicides were committed with no set plan of action, a finding that matches the seemingly random course of spree killing. Later, the FBI profilers extending their research by classifying homicide offending based on a variety of variables, such as victim selection, number of victims, crimes that are committed in conjunction with the homicide, and the temporal and physical characteristics of the violence (Ressler, Burgess, & Douglas, 1988).

Unfortunately, the temporal element of spree killing was unclear. For example, in the *Crime Classification Manual*, Douglas, Burgess, Burgess, and Ressler defined spree murder as the 'killing at two or more locations with no emotional cooling-off period between murders. The killings are all the result of a single event, which can be of short or long duration' (1992, p. 12). Similarly, Cresswell and Hollin (1994, p. 3) defined spree murder as 'several victims are murdered over a period of hours or days in different locations by an impulsive killer who appears to make little effort to evade detection. The victims often ... are killed in a "frenzy."' In their review, Fox and Levin (1998, p. 408) cogently differentiated various types of homicide offenders by the timeframe of the violence: 'Multiple homicides includes cases in which victims are slain either at once (mass), over a short period of time (spree), or over an extended period of time (serial).' Thus, the timeframe of spree killing has been described as 'short or long duration' that somewhere fits between mass killing and serial killing.

### *Offender characteristics*

In an extension of the organized/disorganized typology created by the FBI, Beauregard and Proulx (2002) evaluated the offending pathways of 36 Canadian offenders who had committed sexual homicides. Overall, they found that organized killers were often driven by sexual sadism, the paraphilia demonstrated by some serial killers. Conversely, disorganized killers followed an 'anger' pathway. Although they did not employ the term spree killer, Beauregard and Proulx (2002) found that disorganized killers engaged in unplanned homicides where the victim was not selected beforehand. The murders of the latter group were committed quickly, in less than 30 minutes, and no ritualistic behaviors were found at the crime scene. Victim selection of spree killers was largely random unlike, for example, the specific modus operandi and signature in killing that characterizes serial killers (Douglas et al., 1992; Hazelwood & Warren, 2004; Lundrigan & Canter, 2001; Skrapek, 2001). In this sense, it is undetermined, even in the mind of the spree offender, whether potential victims will be murdered, raped, robbed, burglarized, or some combination of these offenses. Again, this is a sharp contrast to a serial homicide offender who brutalizes specific types of victims in symbolically meaningful ways.

In yet another extension of the seminal FBI research on sexually violent offenders, Hazelwood and Warren (2000) characterized sexually violent criminal offenders as either impulsive or ritualistic. Although they did not specifically refer to these offenders as spree offenders in this study, Hazelwood and Warren described impulsive offenders as criminally unsophisticated and largely reactive in terms of victim selection and crime scene behavior. In *Serial Murderers and*

*their Victims*, Hickey (1991, pp. 171–172) viewed spree killing as a subset of serial killing whereby the homicides were committed within a relatively short timeframe ranging from hours to weeks. According to Hickey, spree murderers were characterized by a high degree of randomness in victim selection, were less ritualistic than serial killers, and were often impulsive and spontaneous.

In a subsequent edition, Hickey (2002, pp. 15–16) further specified spree vis-à-vis mass and serial killers. Spree killers employed murder as a means to take control of their life, were usually arrested at the scene, or died from lethal police force or suicide. The modal offender was a white male who killed four victims in a short period of time. The murders were almost always committed with handguns and had the outward appearance of a spontaneous rage. The use of firearms to murder is qualitatively different from serial killers who generally murder their victims with their bare hands, unassisted by a weapon (Fox & Levin, 1998). Due to the temporally truncated nature of the violence, spree homicides have sometimes been referred to as cluster killings.

### ***Criminal history***

It is important to recognize that homicide can itself be evidence of an offender's cumulative criminal involvement. For example, Douglas et al. (1992, pp. 69–70) defined situational felony murder as unplanned prior to commission of the felony in which the murder is committed out of panic, confusion, or impulse. The perpetrators of this type of crime are usually in the middle stages of their criminal career and often have a history of alcohol/drug abuse that increases their already volatile nature. According to this classification, a frenetic spree murder could be viewed as the culminating act of an otherwise mundane but extensive criminal career. Other criminologists have also explored the place of criminal history or criminal career as it relates to various types of homicide, such as spree killing. Hazelwood and Warren (2000, p. 272) specifically addressed the role of criminal history as an antecedent of repeated, extreme violence. They theorized that impulsive (qua spree) offenders would have diverse and generally antisocial lives whose arrest records reflected 'a multiplicity of offenses with no specific theme to the crimes (i.e., autotheft, driving under the influence, armed robbery, assault and battery, rape, possession of illicit drugs, drunk and disorderly).'

Meloy et al. (2004) recently conducted a comparative analysis of 30 adult mass murderers and 34 adolescent mass murderers sampled from North America. However, they acknowledged that five of these offenders were technically spree killers since they committed crimes at more than one location (Meloy et al., 2004, p. 295). Overall, more than 40% of both mass murderer groups had documented histories of violence, ranging from animal abuse to domestic violence to homicide and more than 60% had extensive substance abuse histories. Unfortunately, it is unknown how these data related specifically to spree offenders.

Similarly, Beasley (2004) examined the backgrounds of seven serial killers using data from the FBI's National Center for the Analysis of Violent Crime. Some of these offenders committed their crimes in a spree-like manner, for example, one offender murdered six males across six states during an eight-month period. Beasley devoted considerable attention to the criminal records of the offenders and found that three had little to no prior records while four had extensive arrest and conviction histories. All from the latter group were psychopaths whereas none of those with minimal prior records were psychopaths.

### **Current focus**

Spree murderers have variously been referred to as 'disorganized,' 'impulsive,' 'asocial lust murderers,' and 'hybrid cases' somewhere between mass murderers, who kill at once, and serial

killers, who murder over years or even decades. They have been defined as killing at two locations with little to no cooling-off period, but the time period of their violence is non-specific. Another aspect of spree murder is clear. Spree murderers commit crimes quickly, frenetically, and almost arbitrarily. The current study focuses on this temporal element. Herein, spree murderers are defined as homicide offenders who committed their crimes in a time span that was greater than one day and less than 14 days inclusive. The lower threshold differentiates spree offenders from mass killers who murder victims at once at a discrete time and space. The 14-day or two-week threshold captures the truncated duration alluded to by prior researchers (e.g., Douglas et al., 1992; Ressler et al., 1988).

Importantly, because homicidal crime sprees are the unit of analysis, spree killers were viewed simply as homicide offenders, that is, defendants who criminally murder another human being in the aforementioned time span between one and 14 days. Although the research community has conventionally required multiple killings to constitute spree murder, we believe that the short-lived, random component of criminal behavior is what most differentiates spree killers from other homicide offenders, not necessarily the body count of victims. Part of the reason for specifying one homicide as the minimum requirement for spree killing is that victim count does not reflect an offender's criminal intentions. For example, 21 of the 66 spree murderers in the current study (32%) attempted to kill additional victims during their crime spree. Indeed, spree killers averaged significantly more counts of attempted homicide than non-spree killers ( $t = 6.11$ ,  $p = 0.000$ ). To put our working definition into historical perspective, Charles Starkweather committed a homicidal crime spree over an eight-day period that encompassed murder and other criminal offenses.

## Methods

### *Sampling technique, data, and study groups*

The more extreme the criminal, the more difficult it is to sample them (Beauregard & Proulx, 2002; DeLisi, 2001; Moffitt, 1993; Reidel, 1999), consequently researchers are often reliant on extant criminal justice records and offender samples when studying extreme offenders. In 2003, an exploratory, stratified convenience sample of 654 convicted, incarcerated homicide offenders was selected from eight states spanning the southern, Midwestern, and Atlantic coast areas of the USA. The states with respective counts of homicide offenders were Arkansas ( $n = 31$ ), Florida ( $n = 272$ ), Georgia ( $n = 68$ ), North Carolina ( $n = 80$ ), New Jersey ( $n = 39$ ), Ohio ( $n = 59$ ), Oklahoma ( $n = 55$ ), and Texas ( $n = 50$ ). These states were selected because they provided biographical information (e.g., name, sex, race, and date of birth) on homicide offenders that could be used to purchase their publicly available criminal records. Records contained correctional and court information and were produced by a clearinghouse with access to criminal justice information in 45 states and Washington, DC. The records service updated its database monthly producing criminal records that although not as reliable as NCIC 'rap-sheets' were reasonably valid measures of the offenders' official criminal history.

Because it is difficult to produce adequate numbers of homicide offenders via probability samples, convenience sampling was used. Unfortunately, this is an inherent limitation in the study of homicide offenders. Additionally, convenience sampling of correctional clients facilitates the use of official data. This is another potential limitation of the current study. As Reidel (1999, p. 75) observed,

homicide researchers operate under a severe constraint from the outset; given its rarity, researchers are unlikely to directly observe the subjects in their studies. Instead, researchers interested in the quantitative analysis of homicide have to depend on secondary data, that is, information gathered for some other purpose. Because of the character of secondary data, information about homicide events

are filtered through layers of recorders and reported who answer to the demands of organizations that may or may not be concerned with the criteria for research data.

Overall, the sample contained 66 murderers who killed during a crime spree and 588 murderers who did not. Fifty-six percent ( $n = 37$ ) of the spree offenders murdered a single victim and 23% ( $n = 15$ ) of spree offenders killed two victims. The remaining 21% ( $n = 14$ ) of spree homicide offenders killed between three and nine victims. Among the control group of murderers, 78% ( $n = 457$ ) killed a single victim and 15% ( $n = 89$ ) murdered two victims. The remaining 7% ( $n = 42$ ) killed between three and six victims. The control group was admittedly heterogeneous as it contained 'normal' homicide offenders who killed one victim and various multiple homicide offenders. Unfortunately, we were not able to construct comparative measures of mass killers or serial killers due to insufficient cases. For example, among the control group, only 10 offenders killed four or more victims (the threshold for mass and serial killing). Of these 10, seven were mass killers and three were serial killers (Douglas et al., 1992, p. 12).

The study groups were similar in terms of their demographic characteristics. Most homicide offenders were males. For spree killers, 95% ( $n = 63$ ) were male and 5% ( $n = 3$ ) were female. For non-spree murderers, 94% ( $n = 555$ ) were male and 6% ( $n = 33$ ) were female. No significant sex differences existed between offender groups (Pearson  $\chi^2 = 0.13$ ,  $p = 0.719$ ). In terms of race and ethnicity, one significant difference emerged. Spree murderers were disproportionately constituted by Hispanic offenders (23% or  $n = 15$ ) compared to non-spree offenders (14%,  $n = 85$ , Pearson  $\chi^2 = 3.13$ ,  $p = 0.077$ ). Whites comprised 41% ( $n = 23$ ) of spree and 35% ( $n = 241$ ) of non-spree offenders (Pearson  $\chi^2 = 0.93$ ,  $p = 0.335$ ). African Americans comprised 39% ( $n = 26$ ) of spree and 43% ( $n = 250$ ) of non-spree offenders (Pearson  $\chi^2 = 0.24$ ,  $p = 0.626$ ). Offenders from other racial and ethnic groups comprised 3% ( $n = 2$ ) of spree and 2% ( $n = 12$ ) of non-spree offenders (Pearson  $\chi^2 = 0.28$ ,  $p = 0.598$ ). Finally, both study groups were considerably older than most offender samples with spree killers averaging 38 years of age and non-spree killers averaging 39 years of age ( $t = 0.60$ ,  $p = 0.547$ ). Although older than traditional delinquent samples, the age structure of the current sample is nearly identical to other datasets of homicide offenders (e.g., Meloy et al., 2004, p. 296).

### Measurement

Multiple homicide offenders frequently commit additional crimes during the course of murdering their victims (Douglas et al., 1992; Fox & Levin, 1998; Hickey, 2002; Ressler et al., 1988). Ten offenses that occurred contemporaneously to the current offenders' homicides were included to explore potential differences between spree and non-spree homicide offenders. For the entire sample, the descriptive statistics were attempted homicide ( $M = 0.22$ ,  $SD = 0.60$ , Range = 0–5), carjacking ( $M = 0.02$ ,  $SD = 0.17$ , Range = 0–3), rape ( $M = 0.21$ ,  $SD = 0.86$ , Range = 0–13), robbery ( $M = 0.76$ ,  $SD = 1.68$ , Range = 0–21), aggravated assault ( $M = 0.34$ ,  $SD = 1.01$ , Range = 0–9), child molestation ( $M = 0.06$ ,  $SD = 0.70$ , Range = 0–12), kidnapping ( $M = 0.32$ ,  $SD = 1.12$ , Range = 0–15), burglary ( $M = 0.34$ ,  $SD = 0.82$ , Range = 0–6), drug violations ( $M = 0.07$ ,  $SD = 0.42$ , Range = 0–6), and weapons violations ( $M = 0.24$ ,  $SD = 1.01$ , Range = 0–21). All were ratio-level count variables indicating arrest and conviction.

To explore the relationship between prior criminal history and homicidal crime sprees, 15 measures of official criminal convictions or sentences were used. For the entire sample, these were prior prison sentences ( $M = 1.43$ ,  $SD = 1.81$ , Range = 0–11), felony convictions ( $M = 3.22$ ,  $SD = 4.05$ , Range = 0–28), probationary sentences ( $M = 2.09$ ,  $SD = 2.77$ , Range = 0–21), misdemeanor convictions ( $M = 0.27$ ,  $SD = 1.01$ , Range = 0–10), murder ( $M = 0.13$ ,  $SD = 0.35$ , Range = 0–2), rape ( $M = 0.16$ ,  $SD = 0.73$ , Range = 0–14), robbery ( $M = 0.44$ ,  $SD = 1.11$ , Range = 0–10), aggravated assault ( $M = 0.47$ ,  $SD = 1.09$ , Range = 0–8), kidnapping ( $M = 0.07$ ,  $SD = 0.42$ , Range = 0–10), and weapons violations ( $M = 0.24$ ,  $SD = 1.01$ , Range = 0–21).

= 0.35, Range = 0–4), child molestation ( $M = 0.03$ ,  $SD = 0.25$ , Range = 0–4), narcotics use ( $M = 0.28$ ,  $SD = 0.94$ , Range = 0–8), narcotics trafficking ( $M = 0.17$ ,  $SD = 0.75$ , Range = 0–8), burglary ( $M = 0.68$ ,  $SD = 1.45$ , Range = 0–10), larceny ( $M = 0.70$ ,  $SD = 1.52$ , Range = 0–16), and weapons offenses ( $M = 0.29$ ,  $SD = 0.71$ , Range = 0–8). An additional measure of total arrests prior to their instant murder offense ( $M = 3.69$ ,  $SD = 4.97$ , Range = 0–36) was also employed. All were ratio-level count variables.

### Analysis strategy

Data were analyzed and presented in two ways. First, *t*-tests were conducted to explore potential mean differences in criminal activity that coincided with the instant homicide offenses for spree and non-spree killers (Table 1). Second, *t*-tests were conducted to explore potential mean differences for prior criminal record between the homicide offender groups (Table 2). Third, a logistic regression model examined the effects of prior criminal record and demographic controls on whether an offender was a spree murderer (no = 0; yes = 1). Controls included sex (male = 0; female = 1), age at time of offense (continuously coded), and three racial categorizations for black (no = 0; yes = 1), Hispanic (no = 0; yes = 1), and a residual 'other' group (no = 0; yes = 1). Whites (no = 0; yes = 1) were the omitted referent. The summary arrests measure was not included in the logistic regression model because it was highly correlated with many of the offense conviction measures. Correlation analysis and regression diagnostics using variance inflation factors showed that the total arrests measure violated the regression assumption of multicollinearity.

### Findings

As shown in Table 1, compared to a control group of 588 non-spree murderers, offenders who committed homicide during a crime spree demonstrated a pronounced involvement in an array of crimes. On average, spree murderers killed two victims ( $M = 2.02$ ) and attempted to murder another ( $M = 0.64$ ). Spree murderers were likely to rape one victim ( $M = 0.86$ ) and victimized more than one via robbery ( $M = 2.68$ ), aggravated assault ( $M = 1.20$ ), kidnapping ( $M = 1.56$ ), and burglary ( $M = 1.56$ ). Spree offenders committed zero incidents of carjacking as well as lower levels of child molestation ( $M = 0.20$ ), drug ( $M = 0.11$ ), and weapons ( $M = 0.82$ ) violations. Yet compared to non-spree murderers, spree killers were significantly more violent in terms of persons killed ( $t = 6.35$ ,  $p = 0.000$ ), attempted killings ( $t = 6.11$ ,  $p = 0.000$ ), rape ( $t = 6.75$ ,

Table 1. Difference of means for crimes instant to homicide event.

Variable	Spree murderer	Other murderer	<i>t</i> -Value	<i>p</i>
Homicide	2.02	1.32	6.35	0.000
Attempted homicide	0.64	0.18	6.11	0.000
Carjacking	0	0.02	0.85	0.396
Rape	0.86	0.14	6.75	0.000
Robbery	2.68	0.54	10.63	0.000
Assault	1.20	0.24	7.68	0.000
Child molestation	0.29	0.04	2.78	0.006
Kidnapping	1.56	0.18	10.18	0.000
Burglary	1.15	0.25	8.93	0.000
Drug violations	0.11	0.06	0.83	0.409
Weapon violations	0.82	0.18	4.96	0.000

$p = 0.000$ ), robbery ( $t = 10.63, p = 0.000$ ), assault ( $t = 7.68, p = 0.000$ ), child molestation ( $t = 2.78, p = 0.006$ ), kidnapping ( $t = 10.18, p = 0.000$ ), burglary ( $t = 8.93, p = 0.000$ ), and weapons violations ( $t = 4.96, p = 0.000$ ). No differences emerged between spree and other murderers for carjacking and drug violations.

As shown in Table 2, both homicide offender groups demonstrated marked criminality evidenced by their official criminal records. Specifically, spree murderers averaged four arrests prior to their ultimate homicide offense, more than three felony convictions, one imprisonment, and more than two probationary sentences. Spree murderers totaled significantly more convictions than other murderers for robbery ( $t = 3.31, p = 0.001$ ) and child molestation ( $t = 2.06, p = 0.040$ ). However, spree murderers netted significantly fewer convictions than other homicide offenders for narcotics trafficking ( $t = 1.65, p = 0.100$ ) and narcotics use ( $t = 1.81, p = 0.070$ ). No additional differences emerged for the remaining measures of official criminal history.

The logistic regression model permitted an examination into the effects of official criminal history and controls on spree homicide offending. An advantage of logistic regression is the option to transform its estimates or odds ratios to percentage change. This makes results more intuitive and interpretable. Logistic regression estimates can be changed to reflect percentage change using the formula:  $\% \Delta = (e^b - 1) * 100$  or  $(\text{Odds Ratio} - 1) * 100$  (Pampel, 2000). Overall, five significant effects emerged. Offenders with prior convictions for child molestation were 103% more likely than offenders without these convictions to commit a spree homicide. Similarly, defendants with robbery convictions were 49% more likely and those with multiple probation sentences were 19% more prone for spree homicide offending. Two additional offenses worth mentioning are murder and rape. Those with previous murder convictions were 61% more likely and convicted rapists were 9% more likely than defendants without these convictions to commit spree murder, however, these effects were not statistically significant. Interestingly, prior record was not always positively related to spree homicide offending. For instance, offenders with prior convictions for kidnapping were 56% less likely to commit spree murder. Finally, Hispanic offenders were 96% more likely than non-Hispanics to commit spree murder. No other

Table 2. Difference of means for prior criminal record.

Variable	Spree murderer	Other murderer	t-Value	p
Total arrests	4.05	3.65	0.62	0.536
Felony convictions	3.59	3.18	0.79	0.432
Prison sentences	1.53	1.42	0.46	0.645
Probation	2.35	2.06	0.82	0.416
Misdemeanor	0.20	0.28	0.62	0.535
Murder	0.17	0.12	0.97	0.332
Rape	0.26	0.14	1.19	0.236
Robbery	0.86	0.39	3.31	0.001
Assault	0.48	0.47	0.09	0.932
Kidnapping	0.06	0.07	0.24	0.813
Child molestation	0.09	0.02	2.06	0.040
Narcotics sale	0.03	0.19	1.65	0.100
Narcotics use	0.08	0.30	1.81	0.070
Burglary	0.85	0.66	0.98	0.329
Larceny	0.68	0.70	0.09	0.931
Weapons offenses	0.29	0.29	0.03	0.975

Table 3. Prior criminal record logistic regression model of spree murder ( $n = 654$ ).

Variable	Odds ratio	Standard error	$z$	$p$
Sex	0.953	0.605	-0.08	0.940
Age	0.983	0.014	-1.16	0.245
Other	1.98	1.63	0.83	0.409
Black	0.997	0.319	-0.01	0.992
Hispanic	1.96	0.731	1.80	0.072
Prison sentences	0.904	0.121	-0.75	0.452
Felony convictions	0.935	0.141	-0.45	0.655
Probation sentences	1.19	0.125	1.68	0.093
Misd. convictions	0.868	0.158	-0.78	0.438
Murder	1.61	0.650	1.18	0.238
Rape	1.09	0.228	0.42	0.671
Robbery	1.49	0.251	2.38	0.017
Assault	0.927	0.176	-0.40	0.691
Kidnapping	0.440	0.221	-1.64	0.102
Child molestation	2.03	0.781	1.85	0.065
Narcotics sale	0.579	0.339	-0.93	0.351
Narcotics use	0.717	0.257	-0.93	0.354
Burglary	1.25	0.220	1.29	0.197
Larceny	0.865	0.152	-0.82	0.413
Weapons offenses	0.851	0.243	-0.57	0.571
Log likelihood	-197.82			
Model $\chi^2$	32.19 ( $p = 0.041$ )			
Pseudo $R^2$	0.075			

significant demographic effects emerged. Full output for the logistic regression model is shown in Table 3.

### Discussion and conclusion

Before delving into the significance and implications of these findings and possible directions for future research, it is critical to acknowledge a variety of methodological limitations. First, investigations of homicide offenders are commonly prone to sample selection biases and the current study is no exception. The sampling process was driven by the availability of offender information furnished by state departments of corrections. We acknowledge that such convenience sampling is a limitation of the current study. To statistically examine whether state affected the results, dummy codes for Arkansas, Florida, Georgia, North Carolina, New Jersey, Ohio, Oklahoma, and Texas were included in the logistic regression model. Because 41% of the offenders were selected from Florida, it was the omitted referent. None of the state effects were significant, and they did not render spurious any of the current findings. Homicide offenders, including spree killers, are rare in number and extreme in behavior – conditions that virtually necessitate purposive sampling techniques (Beauregard & Proulx, 2002; Dietz, 1986; Keppel & Weis, 2004; Nestor, Kimble, Berman, & Haycock, 2002, p. 139; Reidel, 1999).

Second, unlike serial murderers, spree killers and mass killers are likely to die at the scene of their crimes either by suicide or lethal police force. Since the current sample contained living, incarcerated homicide offenders, it excluded those homicide offenders who were slain at their

crime scene. Consequently, it is unknown whether the omission of this deceased group affected the current estimates. Third, the current dataset did not contain measures of offender–victim relationship that may be an integral piece of information differentiating spree killers from other homicide offenders (Beauregard & Proulx, 2002; Cresswell & Hollin, 1994; Fox & Levin, 1998; Hickey, 2002; Ressler et al., 1988). Fourth, the current dataset unfortunately contained no measures of psychopathology, paraphilias, or other clinical disorders that typify criminal offenders who commit extreme forms of criminal violence. Hopefully, future research can control for these psychological effects vis-à-vis criminal history when exploring the antecedents of homicidal crime sprees.

Finally, we employed a new definition of spree murderer that added specificity to the temporal element of spree killing but relaxed the requirement of two or more completed homicides (attempted homicides were included). Future research will determine whether this was a fruitful way to define spree homicide. Still, the current study was a methodological upgrade from the majority of studies of homicide offenders that relied on case studies or very small samples. Indeed, Heide (2003, p. 17) cited studies that employed large samples of various homicide offenders, utilized control groups, and examined offense-related variables as superior approaches to studying homicide offenders. The current effort met all of these criteria and produced some important findings about spree killers.

Harkening back to the introductory comments about the notorious Charles Starkweather case, spree murderers generate considerable social fear because of the explosive violence that is produced. The difference of means analysis (Table 1) produced some compelling results about just how explosive this violence is. Even among a sample of convicted murderers, spree killers were noteworthy for their criminal versatility and sheer magnitude of crimes committed. Specifically, spree murderers killed nearly twice as many victims and attempted to kill more than 4 times as many victims as homicide offenders who did not engage in spree crime. In terms of the average levels of crimes committed during the course of their final homicide event, spree murderers committed significantly more rapes (6 to 1), robberies (5 to 1), assaults (5 to 1), acts of child molestation (more than 7 to 1), kidnappings (nearly 9 to 1), burglaries (nearly 5 to 1), and weapons offenses (nearly 5 to 1) than non-spree murderers. These results offer empirical support for Hazelwood and Warren's (2000) notion that impulsive violent offenders demonstrate a multifarious involvement in crime. In the same way, the criminal versatility of spree murderers matches findings from the criminal career paradigm, which indicate that the most violent offenders tend to be versatile in their antisocial behavior (Britt & Gottfredson, 2003; DeLisi, 2005; Gottfredson & Hirschi, 1990; Moffitt, 1993).

In terms of criminal history, fewer differences emerged between spree and non-spree murderers. As shown in Table 2, both groups of murderers had extensive convictions histories. Compared to non-spree offenders, spree murderers had significantly more prior convictions for robbery and child molestation, but fewer convictions for drug sales and use. The latter findings illuminate some of the differences between various forms of homicide offending. For example, McLaughlin, Daniel, and Joost (2000) examined the criminal histories of 25 adolescent male murderers incarcerated in Virginia's juvenile correctional system. More than half of these single-victim homicides were caused by drug-related disputes. Nearly 75% of the homicide offenders reported active substance use and toxicology results showed that nearly 30% of the homicide victims were intoxicated at the time of their death. Whereas the drugs–violence nexus characterizes homicide offending generally (Smith & Zahn, 1999), it was less relevant among spree murderers.

The logistic regression model (Table 3) proffered an empirical answer to the question: can spree murderers be predicted? Unfortunately, the results are equivocal at best. Two violent offenses, robbery and child molestation, were significantly predictive of engaging in a homicidal

crime spree vs. other forms of homicide offending. Also, defendants with multiple prior probationary sentences were significantly likely to commit a spree homicide vs. other types of lethal violence. An additional violent crime, kidnapping, was negatively related to spree murder. The remaining serious crimes in the model, such as murder, rape, and assault were not predictive of spree murder. These results can be interpreted in multiple ways. First, despite the strengths of the current dataset, there are several missing correlates of homicide offending that would have strengthened the model. For instance, psychopathy (Beasley, 2004) and paraphilias such as sexual sadism (Hazelwood & Douglas, 1980; Ressler, Burgess, & Douglas, 1983, 1988; Ressler, Burgess, Douglas, Hartman, & D'Agostino, 1986) were related to various forms of multiple homicide offending. Future regression models that include these psychological and clinical measures in addition to criminal history variables will better determine the effects of individual offenses on spree homicide.

Second, since most measures of criminal history were not predictive of spree killing, perhaps the phenomenon cannot be predicted at all. If spree homicide offenders spontaneously decide to commit crimes against random, unselected victims, it could very well be the case that few measures from the offender's past will portend their violence. Third and finally, that offenders have little to no criminal history does not necessarily mean that they are not at risk for homicidal offending. For instance, previous scholars (e.g., Prentky et al., 1989; Ressler & Burgess, 1985b) have investigated the role of fantasy among offenders who later committed serial sexual homicide. They found that serial homicide offenders were preoccupied, even obsessed with fantasies of sexual sadism. These fantasies coincided with other paraphilias such as indecent exposure, compulsive masturbation, and voyeurism. These concepts could serve as additional control variables to evaluate the criminal backgrounds of criminal defendants who, seemingly without rhyme or reason, embark on a homicidal crime spree.

## Note

1. This study was presented at the annual meeting of the American Society of Criminology, Toronto, Canada, November 2005.

## Notes on contributors

Matt DeLisi is Coordinator of Criminal Justice Studies at Iowa State University.

Andy Hochstetler is Associate Professor of Sociology at Iowa State University.

Aaron Scherer earned his bachelor's degree in psychology from Iowa State University.

Aaron Puhmann earned his master's degree in sociology from Iowa State University.

Mark Berg is currently a doctoral candidate in Criminology and Criminal Justice at the University of Missouri-St. Louis.

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