

# Rapid-Sequence Serial Sexual Homicides

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Serial sexual murderers have been described as committing homicides in a methodical manner, taking substantial time between offenses to elude the authorities. The results of our study of the temporal patterns (i.e., the length of time between homicides) of a nonrandom national sample of 44 serial sexual murderers and their 201 victims indicate that this representation may not always be accurate. Although 25 offenders (56.8%) killed with longer than a 14-day period between homicides, a sizeable subgroup was identified: 19 offenders (43.2%) who committed homicides in rapid-sequence fashion, with fewer than 14 days between all or some of the murders. Six offenders (13.6%) killed all their victims in one rapid-sequence, spree-like episode, with homicides just days apart or sometimes two murders in the same day. Thirteen offenders (29.5%) killed in one or two rapid-sequence clusters (i.e., more than one murder within a 14-day period, as well as additional homicides with greater than 14 days between each). The purpose of our study was to describe this subgroup of rapid-sequence offenders who have not been identified until now. These findings argue for accelerated forensic assessments of dangerousness and public safety when a sexual murder is detected. Psychiatric disorders with rapidly occurring symptom patterns, or even atypical mania or mood dysregulation, may serve as exemplars for understanding this extraordinary group of offenders.

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Since the early case studies by Krafft-Ebing,<sup>1</sup> sexual murder and sexual murderers have been described in considerable detail, including offenders' backgrounds, victims, and crime-scene behaviors. Notwithstanding the sustained, and even growing, interest in sexual homicide,<sup>2</sup> systematic empirical research has been relatively limited. In fact, Dietz<sup>3</sup> has pointed out that the dearth of publications on sexual homicide is due largely to its extreme rarity, which does not permit the application of ordinary behavioral science research methods. Sexual homicide has been estimated to constitute less than one percent of all murders,<sup>4</sup> and serial sexual homicide, involving multiple murders by the same offender, is even less

common.<sup>5</sup> In addition to the relative paucity of cases, several problems encountered in researching sexual homicide have been delineated,<sup>6</sup> including the absence of national crime statistics, incomplete and inaccurate background information, lack of interdisciplinary cooperation, and lack of definitional clarity.

The early researchers defined sexual homicide either in vague nonmeasurable terms such as "the connection between lust and desire to kill" (Ref. 1, p 62) or merely described various actions of the offender that in some way "serve as sexual stimulation" (Ref. 7, p 40). Even many contemporary studies use definitions that are unclear and inconsistent.<sup>8</sup> Ressler *et al.*<sup>9</sup> provided a reasonably detailed operational definition of sexual homicide by enumerating specific offender behaviors. They operationalized the features not only of a sexual homicide but also of a serial sexual homicide as "three or more separate [sexual murders] with an emotional cooling-off period between homicides [;]. . . [T] he cool-off period can be days, weeks, or months and is the main element that separates the serial killer from other multiple killers" (Ref. 9, p 139).

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The location and dates of the homicides, as well as the number of victims of serial murderers, are relatively objective variables; however, whether an offender cooled off emotionally is not objective and is extremely difficult to measure. That the offender experienced emotional cooling off was inferred, based on the temporal separation between murders: the longer the period between homicides, the greater the likelihood that the offender had cooled off. The issue of a cooling-off period was discussed at a 2005 multidisciplinary serial homicide conference sponsored by the National Center for the Analysis of Violent Crime of the Federal Bureau of Investigation (FBI), and the delegates decided to eliminate the necessity of including a cooling-off period in the definition of serial homicide.<sup>10</sup> Similarly, another term, spree killer, meaning multiple murders in two or more locations with no emotional cooling-off period, was found “not [to] provide any real benefit for use by law enforcement” (Ref. 11, p 12). It was recommended that this type of rapid-sequence homicide pattern be considered simply a form of serial homicide with the dates of the murders being close together. Although the concept of an unmeasurable emotional cooling off of the offender may not provide any real benefit to law enforcement, the periods between multiple murders committed by the same offender are very important. For instance, if one or two murders are committed, the likelihood that another murder will occur very soon, or at some distant time, is an important concern with respect to public safety and the deployment of resources.

The temporal patterns of serial sexual murders have never been a focus of attention or scientific study; however, a close examination of many well-known cases of serial sexual homicide that are well known enough to have gained a sobriquet reveals that many of the murders were, in fact, committed in rapid sequence, within a two-week period. For example, a review of the iconic 1888 case of “Jack the Ripper”<sup>12</sup> found that many of the five prostitute victims attributed to him were killed in fairly rapid succession (August 31, September 8, two on September 30, and one on November 9). The same close temporal pattern of homicides has been found in many other well-known serial sexual murder cases from different periods, different countries, and different cultures. In the 1920s, Germany’s Fritz Haarmann, the “Butcher of Hannover,” killed at least 27 males in a sexual frenzy, many in rapid temporal succession (2

victims in May 1923, 3 in October 1923, 3 in April 1924, and 3 in May 1924).<sup>13</sup> Albert DeSalvo, the “Boston Strangler,”<sup>14</sup> killed 13 women in an 18-month period, 6 in rapid succession in 1962 (1 on June 14 and 28, 2 on June 30, 1 on August 21, and 1 on August 30). The same rapid-sequence pattern is noted in the murders committed by Richard Ramirez,<sup>15</sup> the “Night Stalker” (2 victims on May 14, 1985; 1 on May 29; 2 on May 30; and victims on July 2, 5, 7, 20 and August 6, 8, 18, and 24, 1985, with multiple victims on many dates). Danny Rolling, the “Gainesville Ripper,”<sup>16</sup> killed two women on August 24, 1990, one on August 25, and two on August 27. More recently, Anthony Sowell, the “Cleveland Strangler,”<sup>17</sup> killed two women in April 2009, two in June, and two the next month.

There have been many case descriptions of spree murders,<sup>18,19</sup> but the crimes were mostly of a non-sexual nature,<sup>11,20,21</sup> with the observation that the short interval between the homicides, indicating the lack of a cooling-off period, is the main defining characteristic. Spree murders are different from mass murders, which are defined as the killing of multiple victims at the same time and same location.<sup>11</sup> There have been several types of mass murders delineated (e.g., family annihilators, pseudocommandos, and set-and-run killers), with the common characteristic being one person operating in one location at one time.<sup>3,11</sup> Both spree and mass homicides are distinct from serial homicide which involves the killing of two or more victims by the same offender in separate events.<sup>10,22</sup>

Pollock reported a case of a young man who killed two individuals (with possible sexual motivation) and then two more in fairly rapid succession, considering the case to be a “spree serial murder” (Ref. 23, p 258). Two attempts to create statistical models focusing on the periods between episodes of nonlethal violence<sup>24</sup> and homicide<sup>25</sup> were developed in an effort to identify predictable patterns of behavior that could be useful to investigators. DeLisi and colleagues conducted the only empirical study of the criminal backgrounds of offenders who engaged in what they called “homicidal crime sprees” (Ref. 26, p 37). These authors studied 66 murderers who killed between one and nine victims (within an interval of 1–14 days) during their crime series and found that these types of offenders, compared with murderers who did not kill in a spree, were more violent and more criminally versatile, with criminal histories of

robbery and child molestation. This study did not specify whether the offenders had a sexual motivation for the murders; however, many of these murderers had raped a victim during their homicidal crime spree.

Because there has been a disparity between the assumption that serial sexual murderers take substantial time between homicides and the observation that many killed in rapid sequence, the temporal patterns in this group of offenders requires empirical study. Accordingly, the purpose of our study was to test the supposition that considerable time elapsed between each homicide in an offender's series of sexual murders and to identify and describe a previously unrecognized subgroup of rapid-sequence offenders.

### Methods

To study the temporal patterns in serial sexual homicide empirically, a nonrandom national sample of 44 serial sexual homicide offenders who had 201 victims was examined. Cases for this research were obtained from the FBI's Behavioral Science Unit and were closed, fully adjudicated state and local cases that were contributed by law enforcement agencies from around the country for the purpose of research. Although various units of the FBI have access to additional cases, these were the only ones available at the Behavioral Science Unit where our study was conducted. The 44 cases of serial sexual homicide were part of a larger database of 946 homicides. We had access to the entire case file for these offenders which included police reports; medical examiner, autopsy, and hospital reports; statements by witnesses and offenders; crime scene photos; forensic evidence; and forensic reports. All identifiers, including names of victims, offenders, officers, departments, and correctional agencies have been removed. Only aggregate data are reported.

There is no reason to believe that this sample is materially different from any other nonrandom sample, although this possibility can never be eliminated. There were no specific criteria for inclusion or exclusion of a case, except for availability and that the case met our operational definition of serial sexual homicide. Our sample of serial sexual murderers consisted of U.S. offenders who were apprehended and convicted for the homicides that they had committed, primarily during the 1990s. Some offenders were incarcerated over the course of their criminal careers for a variety of charges, which limited their opportunity

to commit additional homicides. None of the offenders was detained for any reason during the time frame of their series of murders that were committed within the 14-day period. The subjects were all residing in the community at the time of their arrests. Notwithstanding the sometimes unreliability of mean data derived from relatively small samples, as they can be influenced by extreme values, our results are reported to aid in the conceptual variation that our findings identified. Because this research involved only the collection of archival data from existing documents, it was exempted from further review after an initial assessment by the Institutional Review Boards of John Jay College of Criminal Justice and the FBI.

### Operational Definitions

#### *Sexual Homicide*

Sexual homicide was operationally defined using the criteria developed by Ressler *et al.*<sup>9</sup> and Douglas *et al.*<sup>11</sup>: evidence of the victim's attire or lack of attire, exposure of the victim's sexual parts, sexual positioning of the victim's body, insertion of an object, sexual penetration, or evidence of substitute sexual activity or interest or of a sadistic fantasy. Serial sexual homicide was operationalized using the criterion of Morton and Hiltz<sup>10</sup> that there must be at least two sexual homicides at different times and different locations. The initial inter-rater reliability for the classification of serial sexual homicide using Cohen's  $\kappa$  was .997. Cases were classified by review of the entire file and, for inclusion in our sample, independent agreement by the authors was reached. All offenders in our sample committed at least 2 (and as many as 16) sexually motivated murders.

#### *Rapid-Sequence Temporal Pattern*

The periods between homicides denoting a rapid sequence, or what had been called spree killing, have been vague and not substantially more specific than referring to an absence of a cooling-off period. For example, Cresswell and Hollin defined the temporal pattern of a spree killing as "several victims . . . over a period of hours or days" (Ref. 27, p 3). Fox and Levin used "a short period of time" (Ref. 18, p 408) as the time sequence between murders to qualify them as a spree killing, while Hickey used "a relatively short time frame ranging from hours to weeks" (Ref. 28, p 171-2). Beasley<sup>29</sup> cited a case of what he considered to be a spree-like murderer who killed six persons in

**Table 1** Temporal Patterns in Serial Sexual Homicide

Type of Offender*	<i>n</i>	Mean†	Range	SD
Rapid sequence homicides only	6	3.58	1.1–9.30	3.04
Rapid sequence homicides with clusters (Homicides outside of rapid sequence cluster)	13	6.48	1.0–14.0	4.16
Non-rapid-sequence homicides	25	318.50	31–1,148	359.02
		1,054‡	22–10,270	2,117.00

\* Total number of offenders, 44.

† Mean days between homicides.

‡ Given the wide range and standard deviation in this group, the median of 353.75 days is provided as another measure of central tendency.

six states during an eight-month period, which is, on average, about one murder every 40 days.

DeLisi *et al.* operationalized the time span for a spree killing more precisely as “greater than 1 day and less than 14 days inclusive” (Ref. 26, p. 40). The researchers used the minimum interval of greater than one day to differentiate a spree murder from a mass murder, in which an offender may have killed more than one person at the same time and location. Although any period could be regarded as arbitrary, we adopted the 14-day standard of DeLisi *et al.* as an upper limit in operationalizing our definition of rapid sequence. However, we also included cases of two or more murders that occurred on the same day, but only if they were not at the same time and the same location. A rapid-sequence cluster, as employed in this article, is defined as more than one murder within a 14-day period (as well as the possibility for additional homicides committed with greater than 14 days between each). For example, an offender could commit 3 murders within 14 days and 3 additional murders with longer than 14-days between each one.

## Results

Examination of the intervals between murders of our sample of 44 offenders, all of whom were male, resulted in the identification of 19 offenders (43.2% of the sample) who engaged in rapid-sequence serial sexual homicides (i.e., two or more murders within a 14-day period). Six offenders (13.6%) committed their entire series of sexual homicides in rapid sequence. Thirteen (29.5%) committed several rapid-sequence sexual murders in one or two clusters, (i.e., more than one murder in a 14-day period, as well as additional sexual homicides extending over a longer time). Twenty-five offenders (56.8%) killed with greater than a 14-day period between all of their homicides. Table 1 reports the differences in temporal

patterns in our entire sample of serial sexual murderers.

### Rapid-Sequence Homicides Only

The six offenders who committed all their sexual murders in rapid sequence killed at a mean rate of 1 homicide every 3.58 days (range, 1.1–9.3 days, SD 3.04). All offenders were male with a mean age of 34.17 years (range, 22–52 years, SD 10.34) at time of arrest. Two offenders were white, three were African American, and one was Asian/Indian. Four of the offenders killed females only; one offender killed three females and one male, and one offender killed all males. Two offenders killed two people on the same day at different locations. Criminal histories, educational backgrounds, employment status, documented psychopathology/diagnosis (when available), and method of killing varied. One offender shot all victims in the head, three offenders used asphyxiation (primarily with ligatures), one offender used ligature strangulation and blunt-force trauma with stabbing, and one offender killed all victims with multiple stab wounds. Table 2 details the specifics of this group of offenders.

In addition to the homicides officially attributed to these six offenders who committed all their sexual homicides in one rapid sequence, according to the case files, two offenders were strong suspects in several other unsolved homicides. In addition, both of these individuals committed several rapes and were also suspects in several unsolved rapes.

### Rapid-Sequence Homicides with Clusters

Of the 13 offenders who committed rapid-sequence homicides in clusters, one offender killed five women in two rapid-sequence clusters, another offender killed four women in two rapid-sequence clusters, and both of those offenders killed other victims with longer than 14 days between homicides. The remaining 11 offenders killed victims in one

## Rapid-Sequence Serial Sexual Homicides

**Table 2** Rapid-Sequence Homicides-Only Cases

Descriptor	1	2	3	4	5	6
Mean days between murders	4.6	2.0	1.1	9.3	2.0	2.5
Age at arrest	27	22	33	33	52	38
Race	African-American	Asian/Indian	Caucasian	African-American	Caucasian	African-American
Victims	5 Female strangers	3 Female prostitutes	5 Female acquaintances	3 Females, 1 male, all prostitutes	2 Female acquaintances	3 Males
Method of killing	All shot in head	Asphyxiation, plastic bag/ligature	Asphyxiation, ligature	Ligature, blunt force trauma, stabbing	Strangulation	Multiple stab wounds
Criminal history	B&E, theft, nonviolent crimes	None	Homicide, rape, B&E, assault	30 Felony arrests, robbery, rape, assault	Rape, assault, B&E	Rape, robbery
Education	10th grade	Some college	GED	GED	Some HS	HS
Psychopathology/diagnosis	Antisocial personality	Malingering	Anxiety and depression	Sociopathic personality, schizoid traits	Narcissistic personality	Narcissistic, borderline personality
Employment	Fast-food worker	Airport ticket clerk	Expelled from career military service	Unemployed	Unemployed, homeless	Unemployed, just released from prison

B&E, breaking and entering; GED, general education diploma (high school equivalent); HS, high school.

rapid-sequence cluster, along with additional murders with more than a two-week interval between each. One of these offenders killed two people on the same day at different times and locations. The mean number of days within each spree cluster was 6.48 days (range, 1.0–14.0 days, SD 4.16). All of these offenders committed additional sexual murders outside the cluster, some within the same year, some within a period spanning up to 12 years. The mean number of days between homicides outside of the cluster was 318.5 days (range, 31–1,148 days, SD 359.02).

The mean age at time of arrest of the 13 male offenders who committed one or two clusters of rapid-sequence murders was 33.62 years (range, 20–54 years, SD 9.19). Seven offenders were white and six were African American. Twelve offenders killed only females, ranging from 4 to 9 victims, and one offender killed 16 male victims. Criminal histories, education levels, and documented psychopathology/diagnosis (when available) varied. The method of killing was primarily strangulation/asphyxiation and stabbing. Table 3 provides specifics on this group of offenders.

Among the group of 13 offenders who committed rapid-sequence homicides in clusters, several committed other acts of extreme interpersonal violence and several were suspects in additional violent crimes. For example, one individual had a history of multiple rapes and was a suspect in 11 to 50 homicides committed in the same manner as the murders officially attributed to him. Another offender committed two sets of rapid-sequence attempted murders

in clusters, and another individual committed an attempted murder and an attempted abduction within his homicide cluster. One other cluster offender committed two attempted murders in one week and two rapes on successive days, and another offender was a suspect in 40 unsolved homicides committed in the same manner as those murders for which he was found guilty or pleaded guilty.

### **Non-Rapid-Sequence Offenders**

There were 25 offenders (56.8% of the sample) who did not commit rapid-sequence serial sexual homicides, and killed with longer than 14 days between each of the murders. The mean interval between homicides with this group, which was not the focus of our study, was 1,054 days (range, 22–10,270 days, SD 2,117; median, 353.75) In addition to the homicides officially attributed to them, this group of offenders committed additional acts of serious interpersonal violence including 19 attempted murders, 14 assaults, and 25 rapes. As a group, none of these additional violent offenses were committed in a spree-like manner, except for one offender who committed two attempted rapes within 4 days.

### **Discussion**

The characterization of serial sexual murderers as experiencing an emotional cooling-off period between homicides, which would supposedly allow them to plan their next offense in a careful and methodical fashion, was based largely on the definition and description of a serial killer put forth by the early

**Table 3** Rapid-Sequence Homicide Clusters Cases

Descriptor	1	2	3	4	5	6	7	8	9	10	11	12	13
Number of clusters	2	1	1	1	1	1	1	2	1	1	1	1	1
Mean days between cluster murders	5.0 6.0	3.0	8.0	7.25	11.5	14.0	2.0	2.0 5.0	1.0	2.5	10.0	7.0	13.0
Number of victims in cluster	3	2	2	3	3	2	2	2	2	3	4	2	2
Number of non-cluster murders	2 Murders in same year	5 Murders over 4 years	3 Murders in same year, months apart	1 Murder 4 months later	1 Murder in prior year, 1 murder 3 months before	7 Murders over 6 years	5 Murders over 12 years	3 Murders over 5 years	14 Murders over 12 years (dates unknown)	1 Murder 2 months prior	5 Murders over 4 years	4 Murders over 2 years	1 Murder 3 months earlier
Age at arrest	21	30	25	39	39	20	54	28	38	35	33	41	34
Race	African-American	White	African-American	White	White	African-American	White	African-American	White	White	African-American	White	African-American
Total victims	7 Female prostitutes	7 Female strangers	5 Female strangers	4 Female strangers	3 Female prostitutes, 2 female strangers	9 Female strangers	2 Female prostitutes, 5 acquaintances	7 Female prostitutes, drug addicts	16 male strangers	4 Female strangers	7 Female strangers	6 Female strangers	3 Female prostitutes
Method of killing	Asphyxiation	Asphyxiation, stabbing, throat cut	Stabbing, blunt-force trauma	Stabbing, toxic fluid, strangulation	Strangulation, blunt-force trauma	Strangulation, Strangulation, throat cut	Strangulation	Strangulation	Strangulation, stabbing	Stabbing	Strangulation	Strangulation	Strangulation
Criminal history	None	Sex crimes, B&E, rape	Attempted murder, B&E, sex crimes	Rape, B&E, assault, attempted murder	None	Attempted murder, assault	Murder, B&E, fraud, assault	None	Sexual assault, lewd conduct	Assault, arson	Rape, kidnapping, firearms	Sex crimes, assault	Rape
Education	10th Grade	11th Grade	7th Grade	2 Years of college	High school	Some high school	High school	Unknown	College	8th Grade	High school	Nursing school	General education diploma
Psychopathology diagnosis	Borderline IQ	Antisocial personality	Unknown	Unknown	Unknown	Unknown	Psychopathic personality	Obsessive compulsive disorder	Unknown	Unknown	Possible bipolar	Unknown	Unknown
Employment	Unemployed	Hospital aide	Fast-food worker	Cas-station worker	Electrician	Fast-food worker	Artist	Handyman	Bartender, office worker	House painter	Bus driver	Nurse	Welder

B&E, breaking and entering.

researchers.<sup>9,30</sup> This portrait of the serial murderer as acting with thought and deliberation has been popularized and is routinely found in various fictional accounts of these offenders in print, film, and television.<sup>31–33</sup> Although caution is always necessary in drawing conclusions based on a relatively small, non-random sample of convenience, the results of our study suggest that not all serial sexual murderers kill with substantial intervals between homicides. In fact, our results indicate large variability in the temporal patterns of serial sexual murder which may be more emblematic of this type of homicide than previously thought. Although the majority (56.8%) of serial sexual murderers were likely to kill with longer than 14 days between murders, a sizeable number of these offenders (43.2%) either killed in rapid-sequence clusters or killed all their victims in a rapid-sequence, spree-like manner. Further, it is possible that the number of actual rapid-sequence murderers is even greater than our results demonstrate. For example, almost all offenders, even the 25 non-rapid-sequence offenders, were strongly suspected of committing additional acts of attempted murder, assault, and rape, as well as other acts of significant interpersonal violence.

Because this is basically the first empirical investigation of the temporal patterns (i.e., length of time between homicides) in serial sexual homicide, with specific focus on rapid-sequence offenders, it is not unexpected that DeLisi *et al.* concluded, “Surprisingly little is known about offenders who commit murder during a crime spree” (Ref. 26, p 38). Time patterns of some nonhomicidal serial offenders have previously been researched, but from a much different perspective. For instance, Warren *et al.*<sup>34</sup> studied the time serial rapists spent traveling to crime scenes, as a function of distance, and found it to be associated with several demographic and offense characteristics. Similarly, Markson *et al.*<sup>35</sup> examined the temporal proximity of serial burglaries as a basis for linking crimes to the same offender.

One of the best methods of classifying sexual murderers is based on the type of crime scene the offender leaves, which is considered to be an indication of the extent of the offender’s planning.<sup>9,30,36,37</sup> Those offenders who leave organized crime scenes, with little evidence, typically were thought to plan their homicides and have fairly intact personality structures with minimal overt disturbance.<sup>9</sup> Their approach to crime is believed to be systematic and deliberate, pre-

sumably with ample time between murders so that they can plan to deceive and elude law enforcement. Conversely, offenders who engage in impulsive, unplanned homicides, supposedly with little thought or deliberation, have been considered to leave disorganized crime scenes, with abundant evidence, and they often have a history of significant personality disturbance and occasional psychiatric illness.<sup>38</sup> Their psychiatric and severe personality disturbances are thought to interfere with their ability to plan their crimes; in fact, they usually act out spontaneously and rarely take deliberative steps to elude the authorities. In describing this type of impulsive–disorganized offender, Ressler and Burgess noted that “the crime was committed suddenly with no set plan of action for deterring detection” (Ref. 39, p 18).

Accordingly, offenders who kill in rapid sequence seem to be more likely to act impulsively, with much less time to plan, and as a result to leave evidence at a crime scene which makes their apprehension more likely. Although we were not able to evaluate the type of crime scenes left by our subjects, it does not appear that our rapid-sequence offenders adequately fit the prototype of the impulsive–disorganized offender. A review of our cases of individuals who killed in rapid sequence only, or in rapid sequence clusters, indicates an absence of any documented, significant mental disorder that would distinguish them as disturbed in an overt sense or would interfere with their ability to plan. In many cases, a psychiatric or psychological evaluation was either not done, or the results were not available, possibly because these individuals did not exhibit symptoms that would call for such an assessment. Those offenders who were evaluated (and the extent of the assessments was not documented) were found to have various types of personality disorders, many with antisocial traits, which is generally typical of many homicidal and nonhomicidal repetitive criminals.

Implications of our findings for public safety are significant. If, for example, a sexual murder occurs, the likelihood that the offender will kill again or commit other serious crimes is always a concern. Assuming that there is behavioral evidence to suggest that a sexual murderer is operative, the question then arises as to whether the offender will strike again; and if he does, will it be soon or at some later time. It must be kept in mind, however, that sexual homicides are rare events<sup>4</sup> and serial sexual homicides represent a small percentage of sexual murders.<sup>5</sup> If, however, the

suspect is considered to be a potential serial sexual murderer, perhaps because of engaging in behavior such as posing the victim in a degrading manner,<sup>40</sup> our results indicate that more than one-third of such individuals will kill in rapid sequence, and resources then should be more quickly allocated. For instance, a swift interdisciplinary risk assessment of the unidentified offender may be appropriately conducted jointly, including law-enforcement, psychiatric, and psychological perspectives.<sup>41</sup>

Although our findings suggest that there is a subgroup of serial sexual murderers who kill in rapid sequence, it is not clear why they behave in this fashion, etiological theories and models of sexual homicide notwithstanding.<sup>4,42–44</sup> Future research should address the possible underlying differences, along a wide range of dimensions, between those who kill in rapid sequence and those who kill with longer intervals between murders. Clinical examination of offenders would be very helpful in uncovering factors beyond basic demographic, historical, and behavioral patterns reported in investigative case files. Reference to other mental disorders with similar rapidly occurring symptom patterns might be used as an exemplar to help us understand these offenders. For instance, there are differences between alcoholics who go on drinking binges and those who do not;<sup>45</sup> individuals who engage in pathological binge eating and those who eat abnormally but not in this fashion;<sup>46</sup> as well as binge gamblers and nonbinge gamblers.<sup>47</sup> There is certainly no attempt to equate sexual murder with addictive behaviors, eating disorders, or any other mental disorder, but the rapid-sequence symptom expression, although manifested very differently by each group, may indicate a common dimension worthy of consideration. Perhaps the time between homicides is yet another way to differentiate or subcategorize serial sexual murderers, in the same way other psychiatric disorders with rapid symptom expression have been conceptualized. It is also possible that rapid-sequence serial sexual murderers have some type of underlying atypical manic or mood-dysregulation component that becomes behaviorally apparent only in this extraordinary manner. A careful examination of abnormal mood and other markers for atypical mania or hypomania, at least, raises the possibility of some type of psychiatric intervention<sup>48</sup> for this group of extremely dangerous offenders.

In conclusion, our results do not support the supposition that all serial sexual murderers take substan-

tial time between homicides. Instead, the findings indicate significant variability in the temporal patterns among this group of offenders. Although most serial sexual murderers killed with a considerable period between homicides, over one-third killed in a rapid-sequence manner, either killing all of their victims in one rapid-sequence spree, or in one or two rapid-sequence clusters.

There are, however, several limitations of our study that temper the generalizability of the results. Specifically, a relatively small nonrandom sample of convenience was used that may not be representative of the entire population of serial sexual murders. Also, there were many unsuccessful attempts to murder, rape, and commit other acts of extreme interpersonal violence that could make our results an underestimation of the prevalence of rapid-sequence behavior in this group of offenders. Over the course of years, some offenders may have been limited in their opportunity to commit crimes because they may have been incarcerated at times for various offenses. Finally, a more complete delineation of the backgrounds, dynamics, and co-occurring psychiatric disorders of these rapid-sequence offenders could be obtained by direct clinical examination, in addition to review of their case files, which we expect would further our understanding of this important aspect of serial sexual homicide.

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## Rapid-Sequence Serial Sexual Homicides

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