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Criminal, Antisocial, and Temporal Patterns in the Histories of Serial and Non-Serial Sexual Murderers

Victoria Blair Mesa

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Criminal, Antisocial, and Temporal Patterns
in the Histories of Serial and Non-serial Sexual Murderers

by

Victoria Blair Mesa

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the
requirements for the degree of Doctor of Philosophy, The City University of New York

2012

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This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

CRIMINAL, ANTISOCIAL, AND TEMPORAL PATTERNS IN THE HISTORIES OF SERIAL AND NON-SERIAL SEXUAL MURDERERS

by

Victoria Blair Mesa

Advisor: Dr. Louis Schlesinger

Despite its having been the subject of clinical and scholarly inquiry for more than two centuries, empirical research regarding the phenomenon of sexually-motivated homicide remains limited. In particular, relatively few prior studies have focused on perpetrators' criminal and antisocial backgrounds, and these often examine only the data found in official arrest and conviction records, which frequently provide incomplete accounts of offenders' histories. Even fewer researchers have investigated whether temporal patterns exist in the offense histories of sexual murderers. The current study included data on 46 serial and 93 non-serial perpetrators of sexually-motivated homicide, obtained from a large archive. Data collection and coding methods were selected to allow for the use of comparative and multivariate statistical analyses to determine whether the serial and non-serial offender groups differed significantly on the measured variables. Results indicated that multiple offense types were found more frequently in the backgrounds of serial sexual murderers than in non-serial offenders. Few sexual murderers in either group produced temporal patterns in their offense histories. Subsets of victim, offender, and historical variables were used to develop predictive models that could be helpful in distinguishing serial from non-serial sexual homicide offenders. Implications for clinical practitioners, researchers, and law enforcement agencies are discussed.

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DEDICATION

My sister Haley has been inspiring me to do great things ever since she was born. Throughout this process, there were many times when she was my main source of motivation, always believing in me and reminding me that someone looked up to me and completely expected me to succeed. She provided unwavering support and encouragement, and made me stop working long enough to have fun every now and then. I dedicate this dissertation to Haley, as proof that a little girl from a small town can do big things.

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Chapter One

Introduction

Sexual homicide, whether single-victim or serial, has long been a subject of public fascination and scientific inquiry. The first scientific study of sexual homicide can be found in von Krafft-Ebing's *Psychopathia Sexualis* (1886). Richard von Krafft-Ebing, a psychiatrist, was among the first in the mental health profession to argue that psychiatric study should focus on the offender of a crime, rather than the criminal act itself. In *Psychopathia Sexualis*, his best-known work, Krafft-Ebing described several cases of sexual homicide in great detail. He noted that such offenders often took trophies from their crimes, and experienced sexual gratification from the act of killing, as well as various other ritualistic behaviors. Among the cases described was Menesclou, who murdered the four-year-old daughter of his landlords. The child's forearm was later found in his pocket, and her head and entrails were discovered in a pot on his stove. Another offender, Leger, was noted to have abducted a twelve-year-old girl. He mutilated her genitals, killed her, and removed and ate portions of her heart. Krafft-Ebing also described cases of serial sexual homicide, such as that of Vincenz Verzeni, who was alleged to have been responsible for several homicides of women. Among the unusual behaviors Verzeni engaged in were filling victims' mouths with dirt, pulling out their hairpins, and disemboweling them. Another serial murderer, Gruyo, was described as having strangled six women over a ten-year period. He then tore out their intestines and kidneys through their vaginas.

Despite Krafft-Ebing's early study of sexual homicide offenders, the current literature on this subject is fairly limited, and empirical research is still in its relative infancy. Approximately fifty years ago, scholarly and clinical interest in this phenomenon was renewed, though most took the form of clinical case studies or theoretical pieces. Many of the first publications were

authored by forensic psychiatrists, who drew on their clinical experiences with sexual offenders and sexual homicide perpetrators. Brittain (1970) offered a profile of the sadistic murderer, incorporating the perspectives of forensic psychiatry, forensic pathology, and observation of crime scene elements. Brittain noted several characteristics of such an offender, such as a rich sadistic fantasy life, the use of methods of killing that allow for close physical contact with the victim, a history of sexual disturbances or deviance, and the possibility that the offender has no prior criminal record (Brittain, 1970). However, as Banay (1969) pointed out, crimes that appear non-sexual, such as arson, burglary, and assault, may in fact be motivated by sexual desires that may not be obvious to investigators or even within the offender's conscious awareness.

MacDonald discussed the link between sadistic elements of a crime and sexual motivation (1961; 1986). DeRiver (1958) discussed the connection between sadomasochism and sexual homicide, describing sadism as an element that may eventually compel an offender to commit a lust murder. He also described the possible crime scene actions of the perpetrator of a sadistic sexual homicide, such as torturing victims and inflicting genital injury and mutilation. MacDonald also proposed a triad of behaviors – obsession with fire-setting, animal cruelty, and bed-wetting past age five – that were originally thought to be associated with future violence, including homicide (1963). These behaviors have come to be referred to as the MacDonald triad, though subsequent studies have shown little support for its validity in predicting violence (Ryan, 2009). Revitch (1957) discussed the importance of examining a combination of factors, such as sadistic fantasies, sexual preoccupation, past assaults of female victims, and general resentment of females, in making prognostic inferences about potential sex murderers.

Researchers affiliated with the Federal Bureau of Investigation (FBI) undertook the first systematic empirical study of sexual homicide, examining a sample of 36 incarcerated sexual

murderers (Burgess, Hartman, Ressler, Douglas, & McCormack, 1986; Ressler, Burgess, & Douglas, 1988). This landmark study was designed to provide increased understanding of the personality traits and crime scene actions of sexual homicide offenders. The results of this study shed light on the troubled backgrounds of many of these offenders, including childhood physical and sexual abuse, poor academic achievement, social isolation and maladjustment, and behavioral problems. In addition, offenders' accounts highlighted the central role of fantasy in their developmental histories. Much of the foundation of what is currently known about the phenomenon of sexual homicide, and the characteristics of sexual murderers, stems from this research. The FBI's work also renewed scholarly interest in the scientific study of sexually-motivated homicide. Several other important publications began to appear in the mid-1980's, many authored or sponsored by the FBI, and introducing estimated prevalence rates of sex murder (Holmes & DeBurger, 1985), the concept of developing psychological profiles of unknown sexual homicide perpetrators (Douglas, Ressler, Burgess, & Hartman, 1986), and typologies to classify offenders based on observable evidence at the crime scene (Ressler, Burgess, Douglas, Hartman, & D'Agostino, 1986).

Following the FBI's pioneering work in this field, others began to conduct empirical investigations about various aspects of sexual homicide and its perpetrators. However, the number of studies has remained fairly small over time, and much of the existing literature is exploratory and descriptive in nature. In a review of scholarly publications regarding non-serial sexual homicide of adult female victims, only thirteen studies were found to meet these criteria. Of those, several shared datasets, so only ten unique offender samples were reported on (Carter & Hollin, 2010). Despite the limited number of empirical studies of this topic, several notable results have emerged from recent research on serial and non-serial sexual homicide. Previous

studies have produced a profile of the “typical” sex murderer: a Caucasian male in his 20’s to 30’s, who preys on adult females of the same race as the offender, most often strangers (Beasley, 2004; Godwin, 2000; Hickey, 2006). Some research has focused on the characteristics of sexual homicide within a particular country, such as work by Roberts and Grossman in Canada (1993) and by Folino in Argentina (2000). Other studies have investigated the frequency and intensity of media coverage of sexual murders (Soothill, Peelo, Pearson, & Francis, 2004) and the impact such crimes have on the communities in which they occur (Lee & DeHart, 2007).

Despite public, clinical, and scholarly interest in sexually-motivated homicide, there is still a dearth of empirical studies on this topic. This is likely due to the numerous difficulties inherent in conducting research on sexual homicide and its perpetrators. Chief among these problems is that no official statistics are kept on the occurrence of sexual homicides (Meloy, 2000; Schlesinger, 2004b). A related issue is that there is no generally agreed-upon definition that is used across studies on this subject, and definitions created by various researchers often differ (Chan & Heide, 2009; Meloy, 2000). It can also be quite difficult to ascertain whether a given homicide was in fact sexually-motivated, based only on behavioral evidence at the crime scene (Morton & Hiltz, 2008; O’Toole, 1999). With regard to offenders’ criminal histories, much of the current literature relies only on information found in official records, which tend to underestimate the number of crimes a perpetrator has actually carried out (Greenberg, 1998; Liebert, 1985; Prentky, Lee, Knight, & Cerce, 1997). Meloy (2000) pointed out a number of other issues with the published literature on sexual homicide, including frequent use of non-random samples and failure to draw distinctions between offenders’ motives in samples of homicide perpetrators. Chan and Heide (2009) also discussed problems associated with the use

of comparison groups that do not truly distinguish one group of offenders from another, (i.e., sexual murderers and sex offenders, as the murderers may also have committed sex offenses).

While previous research has contributed to the knowledge of many aspects of sexual homicide perpetrators' histories, few studies have specifically focused on offenders' criminal backgrounds, though related factors are sometimes mentioned within studies of other variables. Even fewer studies have considered temporal features of sex murderers' histories, or whether patterns exist in how often these offenders are engaging in criminal or antisocial behavior. The current study sought to investigate these under-studied aspects of the existing literature on sexual homicide. Several features of the dataset and research design employed in this study were implemented to address many of the difficulties associated with conducting empirical research on sexual murder. The use of a relatively large sample allows for the use of inferential statistics, so that the results of this study provide additional information over that typically found in exploratory and descriptive work. Previous comparative studies involving sexual homicide perpetrators have been completed, but they do not commonly examine two groups of sex murderers. The current study utilizes a comparison of non-serial and serial sexual homicide offenders. By focusing on the differences between offenders who commit a single incident of sexual homicide and those who commit multiple incidents, the comparisons made here are more likely to reflect true distinctions between these groups. Studying these two offender groups also allowed for the use of logistic regression procedures to identify possible predictive models that could be useful in determining whether a given offender is likely to fall within the serial or non-serial group on the basis of the analyzed variables. The use of other sources in addition to official records provided a more comprehensive review of the offenders' criminal and antisocial histories, and allowed for investigation of possible temporal patterns in their offenses.

Overall, the results of this research supported existing descriptive studies with regard to offender and victim demographics, and selected crime scene variables, such as the methods used to bring about a victim's death. Comparative analyses revealed that, while the majority of serial and non-serial sexual murderers had officially-documented criminal histories, they also had engaged in far more antisocial behaviors than those for which they had been arrested or charged. In addition, the serial sexual homicide offenders tended to engage in a subset of particularly violent and/or sexual offenses with significantly higher frequency than the non-serial group. Temporal analyses indicated that serial sex murderers also tended to engage in crime over a significantly longer period prior to their final arrests than the non-serial offenders. The majority of the perpetrators in both groups did not produce recognizable temporal patterns in their criminal and antisocial behaviors, but subsets within each offender group did evidence some idiosyncratic patterns. Multivariate analyses utilizing logistic regression found support for the four proposed predictive models, each based on a set of variables that would likely be available to law enforcement at various stages of a sexual homicide investigation. Models incorporating criminal and antisocial background variables were found to be the most useful.

The results of the current study have important implications for a number of practitioners. Law enforcement agencies may implement some of the findings into existing investigative strategies when faced with a case of sexually-motivated homicide. Researchers may incorporate some features of this study's design and coding scheme into future studies in order to address some of the difficulties noted with regard to conducting empirical research on this topic. Results pertaining to criminal and antisocial backgrounds of sexual murderers could be utilized by clinical practitioners in developing or modifying risk assessment protocols during evaluations of those at risk for committing subsequent sexual violence.

Chapter Two

Criminal, Antisocial, and Temporal Patterns

in the Histories of Serial and Non-Serial Sexual Murderers

Despite its rarity, sexual homicide, whether serial or non-serial, has long sparked interest in the minds of researchers, clinical practitioners, and the public. Krafft-Ebing undertook the first scientific study of this phenomenon, and published his observations in his 1886 work, *Psychopathia Sexualis*. Since that time, many scholars have endeavored to understand various aspects of sexual homicide, serial homicide, and serial sexual homicide. These studies have been informative in many respects. However, the existing literature varies widely in terms of the characteristics of the offenders sampled, especially with regard to whether the cases in question are sexually motivated, and whether the offender perpetrated one or multiple homicides. Further complicating attempts to study this topic, researchers' definitions of what qualifies as serial homicide, and what qualifies as sexual homicide, often differ.

Definitions of Sexual Homicide

One of the most widely cited definitions of sexual homicide is that of Ressler, Burgess, and Douglas (1988), who described the phenomenon as a murder in which evidence or observation indicate that the killing has a sexual component. Some factors they suggested as indicative of sexual components include exposure of the victim's sexual body parts or positioning the victim in a sexually suggestive manner, inserting foreign objects into the victim's body cavities, evidence of sexual intercourse or substitute sexual activity, and evidence of interest in sadistic fantasy (Ressler et al., 1988).

Schlesinger (2004b) conceptualized four basic types of homicides involving sexual components: (a) those in which a perpetrator commits murder in order to cover up a sexual

offense; (b) sex-related homicides, where some sexual aspect is present, but its importance or relation to the offender's motive is unclear; (c) homicides which are motivated by a breakthrough of underlying sexual conflicts, and (d) murders in which the killing itself is sexually gratifying. Following Schlesinger's (2004b) classification system, only homicides of the last type, where the murder itself is sexually gratifying, have been considered to be "true" sexually motivated homicides for the purpose of the current study. These types of crimes, in which the offender receives sexual satisfaction through the act of torturing and killing the victim, are also known as lust murders, and the achievement of sexual gratification through killing another person is termed erotophonophilia (Money, 1986). The definition of serial murder most recently put forth by the FBI is "the unlawful killing of two or more victims by the same offender(s), in separate events" (Morton & Hilts, 2008, p. 9). It was noted that one of the motivations for serial homicide could be the sexual needs or desires of the offender, though there may not be overt sexual contact reflected at the crime scene (Morton & Hilts, 2008). Serial sexual homicide is a subtype of sexual murder involving the commission of at least two incidents of sexual homicide involving different victims, and where the motivation for the murders is sexual gratification. These incidents are typically separated by a "cooling off" period. This definition is consistent with those suggested by other researchers (e.g. Douglas et al., 1986; Meloy, 2000).

Differences between types of multiple murder. It is also important to distinguish between serial, mass, and spree killings. Spree murders are multiple homicides committed at different locations, often without a cooling off period in between (Douglas et al., 1986; Meloy, 2000). The lack of widespread agreement among researchers and law enforcement officials regarding what constitutes a "cooling off" period has led some to suggest that spree murders should not be considered a separate category of multiple homicide (Morton & Hilts, 2008).

Mass murders are typically described as a single incident that involves the commission of four or five homicides (Levin & Fox, 1985; Morton & Hiltz, 2008). Mass murders and serial homicides can be distinguished by the time period elapsing between the homicides, with mass murders occurring during one single incident, and serial murders occurring over time in separate events (Morton & Hiltz, 2008).

Prevalence of Sexual Homicide

Among all types of crimes, homicide is the least frequent (Fox & Zawitz, 2010). Official statistics regarding violent crimes reported to United States law enforcement agencies in 2009 indicate that aggravated assaults accounted for the largest proportion, at 61.2%. Robbery made up 31% of violent crimes reported, while rape accounted for 6.7%, and murder comprised only 1.2% of estimated violent crimes in that year (U.S. Department of Justice, 2010). According to the Federal Bureau of Investigation's *Uniform Crime Reports* (U.S. Department of Justice, 2010), murder occurred at a rate of only 5.0 offenses per 100,000 inhabitants in the U.S. in 2009.

Frequency of non-serial sexual homicide. Official statistics are not kept regarding the occurrence of sexually motivated homicide. However, homicide of any type accounts for only a small proportion of violent crime occurring annually in the United States (U.S. Department of Justice, 2010). Of those, data indicate that a substantial proportion, about 40%, occur during the course of an argument, while another group of murders are carried out during the commission of another felony, such as burglary or arson. Gang involvement is a factor in another portion of all homicides committed annually (Fox & Zawitz, 2010). Thus it can be inferred that sexually-motivated homicides account for a small subset of all murders occurring annually in the U.S.

Based on official statistics found in the *Uniform Crime Reports* regarding the annual number of homicides involving rape, other sexual activity, and prostitution, Meloy (2000)

estimated that the sum of these crimes, “which *may* be sexual homicides, typically represent less than 1.0% of homicides reported” annually by law enforcement in the U.S. (Meloy, 2000, p. 3). Canadian scholars have estimated that up to 4% of annual homicides in Canada could be categorized as sexual (Roberts & Grossman, 1993). However, as Roberts and Grossman (1993) point out, Canada’s *Criminal Code* does not include specific language defining a “sexual homicide;” rather, it contains provisions regarding any homicide occurring during the commission of a sexual assault. Folino (2000) analyzed the case files of all homicides involving sexual intercourse that had occurred in Argentina from 1988 to 1996, and found only 16 cases met these criteria. A study of 4,860 convicted murderers in England and Wales from 1985 to 1994 found that only 3% of these offenders were sexual homicide perpetrators, using information regarding evidence of a sexual motive obtained from the England and Wales Homicide Index (Francis & Soothill, 2000).

Frequency of serial sexual homicide. Even among offenders who have already committed one homicide, only a very small proportion goes on to murder again, as in the form of serial homicides (Busch & Cavanaugh, 1986). Research on 166 perpetrators of sexual homicide in Germany examined the rate of committing additional homicides after release (Hill, Habermann, Klusmann, Berner, & Briken, 2008). Follow-up data was available for 139 men in the sample. Of these, over 40% had originally killed more than one victim. Ninety offenders were released, with two being subsequently convicted of attempted murder, and one receiving a conviction for murder. Of the three repeat offenders, two had killed multiple victims at the time of their initial convictions. Schlesinger (2004a) points out that approximately 70% of all homicides are motivated by situational factors. Because the recidivism rate for situational homicides is low, the recidivism rate for homicide in general is low. However, the compulsive

homicide perpetrator is triggered by internal psychogenic sources and sexual motives (Schlesinger, 2004a). Compulsive offenses involve “a fusion of sex and aggression so that the aggressive act itself is eroticized” (Schlesinger, 2004a, p. 208). The act of killing another person, as well as repetitive ritualistic acts committed during the homicide, become part of the offender’s sexual arousal pattern (Warren, Hazelwood, & Dietz, 1996), which makes a sexual homicide offender likely to repeat his offenses (Hickey, 2006). Others have also noted the risk of recidivism associated with sexual homicide, pointing out that because sex drive continues across the lifespan, so does the risk of reoffense for sexually motivated crimes (Langevin, 2006).

Some have estimated that no more than 200 to 300 individuals are killed by a serial homicide offender each year in the U.S. (Fox & Levin, 1994), while others speculate that serial murder claims up to 6,000 lives annually (Egger, 1990). Holmes and DeBurger (1985) estimated that serial homicide was responsible for as many as 5,000 deaths per year, and that there were approximately 100 serial killers operational in the United States at any given time. McClellan (2010) searched the academic literature and news articles published from 1997 to 2007 and compiled a list of 63 serial homicide offenders who were apprehended during that ten-year period. She found that these offenders had committed 750 homicides, with an average of 75 victims per year. McNamara and Morton (2004) undertook a study to determine the frequency of serial sexual homicide occurring in Virginia from 1987 to 1996. These researchers defined serial homicide as the killing of three or more victims over a period greater than 24 hours. They found that 5,183 murders were reported in Virginia during the period in question. Of these, only 28, or 0.5%, were due to serial homicide perpetrators. Extrapolating from these figures, the authors estimate that approximately 750 people are victims of serial sexual murder in the U.S. each year (McNamara & Morton, 2004). It is important to note that the 28 serial sexual murders

in this study were committed by a total of six offenders, one of whom was unidentified. Thus the average number of victims per serial homicide perpetrator in this study was over four, which may not accurately represent the number of homicides that are committed annually by the population of multiple sexual murderers in the United States.

In general, rates of serial sexual homicide are difficult to assess, and any estimation procedure may be inaccurate for a number of reasons, including a lack of official statistics on this phenomenon (Schlesinger, 2004b; U.S. Department of Justice, 2010). It has been suggested that rates of serial homicide victimization may be underestimated due to multiple factors, including the notion that some missing persons may have been victims of serial murder, but never identified as such (Quinet, 2007). This could occur if an offender selected victims who were not likely to be noticed or reported as missing, such as illegal aliens, prostitutes, and the homeless, or because an offender's body disposal method made it difficult or impossible to determine the cause of death or identity of the victim. Quinet (2007) suggested that, in order to better estimate how many missing persons might have become victims of serial murder, studies of known serial killer victims should assess how many of those would have been reported as missing. Using the case of the Green River Killer, Quinet (2007) pointed out that at least one-third of that offender's serial sexual homicide victims had not been reported as missing persons. She referred to such individuals as being among the "missing missing," members of marginalized groups whose disappearances are not often reported or made a focus of investigative attention. Examples include those who are estranged from their families and living a transient lifestyle, homeless individuals, prostitutes, illegal immigrants, and those who have active outstanding warrants for their arrest (because they are recorded as fugitives, and may become crime victims without being noted as missing persons). Based on the number of Green

River victims who were not reported missing, or whose bodies were unidentified following their discovery, Quinet (2007) reasoned that existing estimates of the number of serial murders per year may fail to account for 33% of actual victims, and suggested that there are at least 182 uncounted annual deaths in the U.S. due to serial murder, and as many as many as 1,832 “missing missing” serial homicide victims. However, the decision to use the Green River case as the basis for her analyses is likely to lead to an overestimation of the number of unknown serial murder victims. This is because the offender in that case, Gary Ridgway, has been reported to be the most prolific known serial homicide perpetrator in the United States, having pled guilty to 49 murders and remaining a suspect in several others (Sullivan, 2011). Hickey (2006), who studied over 300 cases of serial homicide, noted that these offenders rarely kill more than ten victims.

Some have postulated that the rate of serial homicide has increased over time. Lowenstein (1989) estimated that there had been a 270% increase in deaths due to serial murder from 1982 to 1989, though the overall homicide rate increased only 12% over the same period. Others have pointed out that the overall clearance rate for homicide cases decreased over a forty-year period, while there was a concurrent increase in the number of murders with unknown motive, suggesting that an increase in the rate of serial homicide could account for the observed trends (Ressler et al., 1988). However, Schlesinger (2001a) noted that clearance rates for crimes other than murder were also down during the same time period discussed by Ressler and colleagues. Schlesinger (2001a) explained that if the rate of serial homicide were increasing, a concomitant increase in the number of homicides of female victims would be expected, given that serial murderers typically offend against females. However, the number of female victims had actually decreased over the specified timeframe, leading Schlesinger to suggest an

alternative explanation for the observed data: that there had been an increase in the rate of contract murder (2001a).

Offender Characteristics

Data derived from previous studies has indicated that the perpetrators of sexual murder are typically Caucasian males in their late twenties or early thirties (Beasley, 2004; Holmes & Holmes, 1998; Levin & Fox, 1985; Meloy, 2000). Folino (2000) analyzed all homicides involving sexual intercourse that occurred in Argentina between 1988 and 1996. There were only 16 such cases, all with male offenders whose average age was 28, though the perpetrators ranged in age from 16 to 49. This study did not include cases with multiple victims, though two of the cases analyzed were committed by more than one offender. In a study of 367 cases of serial homicide perpetrated by 431 offenders, Hickey (2006) found that 83% of offenders were male, 72% were Caucasian, and many were of average intelligence, but employed in blue collar jobs. The average age of offenders in this sample was also 28. Similar results were found in a study of 107 serial homicide perpetrators (Godwin, 2000): offenders' average age was 30, 95% were male, 82% were Caucasian, 67% were employed, and 27% had served in the military.

Wolf and Lavezzi (2007) noted that the common media portrayal of a serial homicide offender is that of "a white male between the ages of 20 and 35, from a middle-class background who suffered emotional or physical abuse as a child," (p. 202). However, others have noted that in reality, the characteristics of those who commit serial homicide are much more varied than what is typically depicted in the media (Ebrite, 2005). For example, Walsh (2005) discussed the phenomenon of black serial murderers, noting that the media and general public usually do not believe there are such offenders, though evidence has demonstrated otherwise. Morton and Hilts noted the existence of "African-American, Hispanic, and Asian serial killers" (2008, p. 4).

Brittain (1970) described the “sadistic murderer” as a loner, someone who is often withdrawn or isolated, and feels different from others. He may have a conflicted relationship with his mother, and probably has interests in weapons and books on sadistic interests. Extant literature suggests that the “typical” sexual murderer is intelligent or at least street smart, charming and charismatic, and likely to be interested in police work (Holmes & Holmes, 2002).

Developmental features. In their landmark study of 36 sexual murderers, Burgess and colleagues (1986) found that 40% of the offenders in their study had lived away from home before age eighteen, in settings such as foster homes, state-funded facilities, detention centers, and psychiatric hospitals. The majority of the offenders had not completed high school, and many of their histories included evidence of early sexualization (Burgess et al., 1986). Studies have found that sexual homicide offenders often experienced physical or sexual abuse during childhood (Oliver, Beech, Fisher, & Beckett, 2007). Nicole and Proulx (2007b) found that sexual murderers were more likely than a comparison group of sexual aggressors to have been the victims of childhood sexual and physical abuse. In their review of the existing literature on sexual murderers, Carter and Hollin note that poor school achievement is a common characteristic of these offenders, as is social isolation in childhood. Social isolation and emotional loneliness in childhood and adolescence have been described as contributing factors to the development of the future sexual murderer (Arrigo & Purcell, 2001), and their presence in these offenders’ personal histories has been commented upon in several studies (e.g., Campos & Cusson, 2007; Grubin, 1994; Nicole & Proulx, 2007b). A number of studies have also suggested that a history of problems in school and other behavioral difficulties are common among those who go on to commit sexual homicide, with the most frequent problems being related to truancy and disciplinary issues (Carter & Hollin, 2010). A history of fighting, suspensions from school,

and truancy have been found in studies of sexual murderers (Langevin et al., 1988), as well as problematic levels of daydreaming or nightmares (Campos & Cusson, 2007). Various behavioral problems have also been found in the histories of many sexual murderers, including running away from home, stealing, having temper tantrums, fire-setting, and cruelty to animals (Langevin et al., 1988).

Mental illness. A comparative study by Langevin and colleagues found that 83% of sexual murderers had diagnosable personality disorders, in comparison to 58% of sexual offenders who had not committed homicide, and 54% of those who had committed murders that were not sexually motivated (Langevin et al., 1988). About a third of the perpetrators in this sample met diagnostic criteria for Antisocial Personality Disorder (Langevin et al., 1988). In addition, the authors noted that 60.5% of the sexual homicide offenders they studied were rated as severe pathological liars, some of whom enjoyed fabricating details of their personal history and fooling evaluators (Langevin et al., 1988). Many sexual homicide perpetrators have previously had some degree of contact with the mental health system (Carter & Hollin, 2010). A history of psychiatric treatment was prevalent in a group of such offenders studied by Oliver and colleagues (2007). Langevin and colleagues found that half of the offenders in their sample had a psychiatric history, as did over one-third of Grubin's (1994) sample. However, despite the many sexual homicide offenders who have had prior mental health contacts, it is rare for sexual murderers to have been diagnosed with a psychotic disorder (Meloy, 2000; Nicole & Proulx, 2007a). Only two of 38 serial sexual homicide perpetrators in one study displayed symptoms of mental illness at the time of their homicides (Schlesinger, Kassen, Mesa, & Pinizotto, 2010). However, as Meloy has pointed out, "virtually all" perpetrators of sexual homicide evidence features of narcissism and psychopathy (2000, p. 7). Many also have various paraphilias (Meloy,

2000). Grubin (1994) found that nearly half of sex murderers had engaged in paraphilic behaviors, even those who had not been formally given a diagnosis of paraphilia. Campos and Cusson (2007) found that serial sexual homicide perpetrators were more likely than non-serial ones to have had problems in youth with compulsive masturbation.

Sadistic sexual fantasies. Many authors have discussed the significant role that violent sexual fantasies play in the development of the sexual murderer. In their study of 36 sexual homicide perpetrators, Burgess and colleagues (1986) noted that many offenders in the sample endorsed long-standing, aggressive thoughts and fantasies directed toward sexualized death. Sexual murderers often seek out materials that fuel their sadistic interests, such as books or visual stimuli, and may act out features of their fantasies during the commission of their crimes (Brittain, 1970). An offender's sexual fantasy life serves as an arena for rehearsal of his desires and interests, where he can practice acting on violent urges (Hazelwood & Michaud, 2001). Campos and Cusson (2007) found that over a third of the sexual murderers they studied disclosed the presence of deviant sexual fantasies. Keppel (1995) pointed out that the etiology of a sexual homicide perpetrator's ritualistic or signature behavior during a murder can often be found in the offender's sexual fantasies. In one study of sexual homicide offenders, 80% endorsed a history of masturbatory fantasies that were directly connected to the way in which the crimes were carried out (Burgess et al., 1986). Scholars have suggested that the sexual killer's actions at the crime scene will typically portray some unique and personal aspect of ideas and thoughts that have been repeated numerous times in his fantasy life, and thus the perpetrator may engage in sadistic behavior during the commission of a homicide that exceeds the amount of injury necessary to cause the death of the victim (Keppel, 1995).

Victim Characteristics

While victims of situational homicides are predominantly male, females are over-represented as victims of sexually motivated homicide (Schlesinger, 2001a). McClellan (2010) found that 63 serial homicide perpetrators apprehended in the U.S. from 1997 to 2007 were responsible for 750 murders, with 94% of the victims being female. Beasley (2004) studied seven serial homicide perpetrators and found that six had at least one female victim. However, three offended against males and females, and only one offender in the study killed male victims exclusively. Two of the seven homicide perpetrators had murdered victims belonging to more than one racial group. In general, research on the victims of sexual homicide has found that they are usually female and of the same race as the offender (Hazelwood & Douglas, 1980; Ressler et al., 1988; Meloy, 2000). These characteristics are more common in serial sexual homicide, as the victims of single-victim sexual homicide vary more widely. For instance, in Folino's (2000) study of 16 homicides involving sexual intercourse in Argentina, the victims included five children, though all but one were female. There were three male victims overall, with one being a child (Folino, 2000). In a sample of 166 sexual homicide perpetrators in Germany (Hill et al., 2008), nearly three-quarters (74.4%) of the 227 victims were female, and 21.6% of the victims were children under age 14. Safarik and colleagues noted that, while it is rare, there are documented cases of sexual homicide involving elderly female victims. It is difficult to reliably estimate the prevalence of such cases, however, due to problems in obtaining accurate statistics (Safarik, Jarvis, & Nussbaum, 2002). Additionally, few offenders can be relied upon to fully acknowledge that they committed such a crime. For example, Safarik and colleagues (2002) found that only 45% of offenders who committed sexual homicide of elderly victims confessed before their arrest, while 19% made some type of admission, but denied responsibility.

Extant research also suggests there is generally no prior relationship between the sexual homicide offender and his victims. Godwin (2000) found that 62% of the serial murderers in his sample targeted only strangers, while Hickey (2006) found that 71% of the cases in his sample involved stranger victims. Others have also found that the majority of sexual homicide offenders are strangers to their victims (Grubin, 1994; Nicole & Proulx, 2007a). Researchers examining sexual homicide of elderly victims found that offenders who are classified as strangers in some cases may have actually had some previous knowledge of the victim from living in the same neighborhood, for instance (Safarik et al., 2002). However, as Carter and Hollin (2010) point out, results pertaining to the victim/offender relationship may be limited because researchers' definitions of relationship types vary across studies, and many publications do not provide detailed explanations of their criteria, such as how long the parties must have known one another in order to be considered "acquaintances."

Offense Characteristics

Research and case examples suggest that alcohol and drug abuse may play a role in the commission of sexual homicides (Carter & Hollin, 2010). In a study of 36 perpetrators of non-serial sexual homicide, Beauregard and Proulx (2002) found that nearly all of the offenders reported alcohol consumption prior to committing homicide. Half admitted to drug use in the hours before the homicide (Beauregard & Proulx, 2002). Sexual homicides often take place in public locations, or in the victim's residence (Roberts & Grossman, 1993). Over a third of the sexual murders analyzed by Langevin and colleagues were committed inside the victims' homes (Langevin et al., 1988). Access to a victim's home is often gained by breaking and entering, either in order to commit a homicide, or in order to commit another offense, such as burglary, and the murder is a crime of opportunity (Grubin, 1994).

Sexual murderers often kill with “hands-on” methods (Brittain, 1970), such as strangulation or suffocation, multiple stab wounds, and beating the victim to death manually or with various objects (Hazelwood & Douglas, 1980). Roberts and Grossman (1993) found that strangulation was the most common killing method in the offenders they studied, followed by stabbing, then beating. Other researchers have found that sexual murderers are significantly more likely to strangle their victims than are perpetrators of non-sexual homicide (Langevin et al., 1988). It is less common for the sexual homicide offender to use a firearm (Hazelwood & Douglas, 1980; Roberts & Grossman, 1993). Some have hypothesized that this is because the use of a firearm does not allow the physical proximity and intimacy afforded by strangulation, stabbing, or beating (Ressler et al., 1988; Meloy, 2000). The behaviors that an offender engages in during the commission of a sexual homicide are motivated by a desire for sexual gratification (Warren et al., 1996), and it is extremely likely that the manner in which an offender chooses to bring about the victim’s death reflects the perpetrator’s violent fantasies (Prentky et al., 1989).

Behaviors that often exceed the level of violence needed to cause a victim’s death have been reported to be common in sexual homicide cases, because they serve the sexual murderer’s psychosexual needs (Keppel, 1995). Schlesinger (2004a) noted that, for the sexual homicide offender, the violence itself is eroticized, and the commission of the homicide is sexually gratifying, so it is not necessary for the offender to engage in overt sexual activity with the victim (Morton & Hiltz, 2008). However, there may be evidence of substitute sexual activity (Meloy, 2000), including repetitive and ritualistic acts that are psychologically meaningful and sexually arousing to the perpetrator (Keppel, 1995). An examination of the type and frequency of ritualistic and unique signature behaviors committed during sexual homicides (Schlesinger et al., 2010), indicated that some of the more frequently-occurring rituals included binding the

victim, overkill (inflicting injuries far in excess of those needed to cause death), posing the victim's body after death, and engaging in actual penile penetration of the victim.

Modus operandi and signature. Though often used interchangeably, *modus operandi*, (or M.O.) and signature are distinct concepts. An offender's M.O. is his conscious technique of carrying out the crime (Douglas & Munn, 1992), and includes the actions necessary to commit the crime, such as how the offender approaches a victim, behaviors he may engage in to disguise his identity or otherwise decrease the likelihood of apprehension, and the manner in which he disposes of the victim's body (Meloy, 2000). An offender's M.O. is comprised of learned behaviors, and tends to evolve over time a perpetrator gains more confidence in, and experience with, committing crimes (Douglas & Munn, 1992; Keppel, 1995). However, the ritualistic signature behaviors that an offender chooses to engage in are driven by the offender's sexual fantasies (Hazelwood & Michaud, 2001; Keppel, 1995), and are not necessary to bring about the victim's death. Rather, signature behaviors serve a psychological purpose for the perpetrator, and are often done as a means to achieve sexual gratification (Warren et al., 1996). Because these behaviors are developed and maintained in the offender's fantasy life, signature is less likely than M.O. to change over time, but an offender may engage in ritualistic elements that evolve or become more elaborate over time (Keppel, 1995), though the theme of the perpetrator's signature remains the same (Schlesinger et al., 2010).

In one of the only empirical studies to examine signature behavior in serial sexual homicide, Schlesinger and colleagues reviewed the case files of 38 male serial sexual murderers, who were collectively responsible for 162 sexual homicides (Schlesinger et al., 2010). These authors drew a distinction between repetitive, ritualistic acts committed during a sexual homicide, and those behaviors that are unique enough to be referred to as an offender's

signature. Ritualistic acts were defined as behaviors an offender engages in that are unnecessary for carrying out the murder itself, involved activity that exceeded what would cause death, and occurred with at least two victims. Signature behaviors were conceptualized as a subset of ritualistic acts. In order to be considered signature behaviors, the crime scene actions had to be unique or distinct in and of themselves, more common actions that were carried out in a unique way, or a unique combination of different crime scene behaviors (Schlesinger et al., 2010).

Results showed that 37 of the 38 sexual murderers studied had engaged in ritualistic acts with at least two victims in a series, with over 90% of the murders involving some kind of ritualistic behavior. While nearly all ($n = 33$; 89.2%) of the offenders were noted to have engaged in some type of ritualistic act with all of the victims in a series, only five men in the sample committed the same rituals with each victim. It was more common for offenders to engage in similarly-themed ritual acts across victims ($n = 31$; 83.8%). Results showed that 17 of the sexual murderers studied engaged in repetitive ritualistic behaviors with at least two victims that were sufficiently unique to be referred to as the offender's signature. However, signature was not necessarily observed at each homicide, as analyses indicated that these rituals were observed in 18% to 100% of the homicides in a series. Also, 17 offenders displayed evolution or elaboration of rituals over time. Many offenders ($n = 26$) engaged in "experimentation" with at least one victim, which involved the commission of ritualistic acts that were notably different from those observed in other homicides in the series. Experimentation typically involved postmortem genital mutilation, dismemberment, or both (Schlesinger et al., 2010).

Offender Profiling

Offender profiling, or criminal investigative analysis, is often described as an investigative tool (Holmes & Holmes, 2002) in which knowledge of previous homicide

perpetrators' crime scene behaviors is used to aid law enforcement in identifying and apprehending an unknown offender (Douglas et al., 1986). Criminal investigative analysis typically includes an intense review of information about the crime scene in order to discover evidence of the offender's psychopathology (O'Toole, 1999). A profile of an unknown offender often includes information about the possible perpetrator's race, gender, emotional and chronological age, marital status, education and training, occupation, and work history (Holmes & Holmes, 2002). Profiles may also include information about an offender's ability to communicate with others, the likelihood that he has a record of prior criminal activity, the presence of mental deterioration or sexual dysfunction, whether the offender appears to experience feelings of remorse or guilt, and the likelihood that the perpetrator will commit a similar crime in the future (O'Toole, 1999). In addition, an experienced profiler can comment on many of the offender's behavioral characteristics, based on observations made at the crime scene, such as the level of planning involved in the offense, the offender's level of control and emotion, the degree of risk to the offender and the victim, and the degree to which the perpetrator can be considered organized or disorganized (O'Toole, 1999).

Profiling rests on several assumptions about the psychological characteristics of the perpetrator. These include the idea that the crime scene reflects the personality of the offender, and that both *modus operandi* (how an offender actually goes about committing the crime) and any ritual or signature behaviors will remain similar over time and across scenes (Holmes & Holmes, 2002). The idea that these behaviors are consistent over time permits profilers to use linkage analysis to connect multiple crimes to the same offender (Douglas et al., 1986). A homicide offender's actions at a crime scene are based on his repeated fantasies, and are thought to demonstrate his unique personal expression (Keppel, 1995). Some have pointed out that while

there are several examples in case law that attack the validity of linkage analysis, an offender's core signature will not change over time and can be successfully used to attribute a series of separate offenses to one perpetrator (Keppel, 1995). An example of a serial sexual homicide case was described by Keppel (1995), in which the offender had committed similar acts at each homicide scene that were thought to be signature elements. These included leaving victims' bodies in places that guaranteed they would be discovered, posing the bodies in sexually degrading positions likely to shock onlookers, inserting foreign objects into victims' body cavities, and incorporating items found at the crime scene while posing victims after death. This sequence of multiple rare characteristics, carried out across multiple crime scenes, allowed investigators to link the three sexual murders in question to the same perpetrator (Keppel, 1995).

However, researchers have noted that sexual homicide offenders' signatures may evolve over time and across crime scenes. In Keppel's (1995) case example, the offender's behaviors changed across the series: he allowed victims to defend themselves less over time, spent more time with victims after death, and inflicted an increasing number of injuries to the victims of the later homicides. In a study of 37 serial sexual murderers who engaged in ritualistic behaviors (Schlesinger et al., 2010), results indicated that only five offenders (13.5%) engaged in the same ritualistic behavior on every victim in a series, though 31 of the men studied (83.8%) engaged in rituals with similar themes across victims. In addition, 17 perpetrators (45.9%) demonstrated evidence of elaboration or evolution of ritualistic elements over time, and 26 offenders (70.1%) experimented with different behaviors during at least one crime in the series, meaning that they committed an act in one murder that was vastly different from the behaviors seen in the other homicides in the series (Schlesinger et al., 2010). The potential for a perpetrator to engage in different crime scene behaviors across offenses, as well as the problems inherent in attempting to

infer psychological characteristics from behavioral evidence, make criminal investigative analysis a complex task. O'Toole (1999) cautioned that "the interpretation of behavior observed at a crime scene is extremely difficult" (p. 46).

The use of criminal profiling is also controversial, with some scholars noting the lack of empirical evidence supporting its use (e.g., Snook, Cullen, Bennell, Taylor, & Gendreau, 2008). In a study of perceived profile accuracy, police were provided with criminal profiles that they were told had been authored by a "professional profiler" or "a person consulted by the investigator." The content of the profiles was the same across groups, and the author attributions were assigned randomly. Results showed that police felt that the profiles authored by professionals were more accurate than those authored by consultants (Kocsis & Hayes, 2004). Few empirical studies have attempted to examine the validity of criminal profiles by comparing the information contained in them to known characteristics of actual offenders (Oleson, 1996). In one such study, people in various occupational groups were asked to evaluate information about a crime and generate a profile of the unknown offender (Kocsis, 2003). Results showed that the group of 11 professional profilers studied generated more accurate analyses than did the other groups, including psychologists, college science students, police personnel, and self-identified psychics. However, there was a great deal of variability within the profiler group, and not all the individual profilers were equally accurate. While the psychologists performed fairly well, the group of college science students was the most successful after the profilers, and there was less variability within the student group (Kocsis, 2003). Because criminal investigative analysis is conceptualized and used as an investigative aid (Holmes & Holmes, 2002), rather than as a type of evidence, profiling is not subject to the same level of judicial scrutiny as other forensic techniques (Kocsis, 2003). As a consequence, it continues to be used and thought of as

an important investigative tool, despite the current lack of empirical evidence for the technique's validity (Snook et al., 2008).

Spatial Factors in Sexual Homicide

Researchers have suggested that gathering information about locations related to sexual homicide cases can be useful in identifying and apprehending an offender (Godwin, 1998). Related locations can include the sites where victims were initially approached by the perpetrator, crime scenes where the homicide occurred, and body disposal sites (Godwin, 1998). Geographic profiling is a relatively new technique that examines the locations of crime scenes associated with sexual homicides or other serial crimes thought to be committed by the same person. Similar to offender profiling, existing data on spatial patterns in serial crimes are used to predict the most likely location of a current offender's residence or workplace (Rossmo, 2000). Researchers compared spatial variables between perpetrators of serial murder, serial rape, and serial burglary (Goodwill & Alison, 2005). Results showed that there were differences in location choice between these three types of offenders, which could possibly be attributed to characteristics of the crimes themselves, such as the risk posed to the offender.

Lundrigan and Canter (2001) researched the spatial characteristics of body disposal sites and found that the serial homicide perpetrators in their sample fit into consistent patterns with regard to the location of their homes and body disposal locations. Godwin and Canter (1997) studied 54 serial killers and found that the average distance between an offender's home area and a victim's abduction site was shorter than from the offender's home to body disposal sites. The serial murderers studied also tended to travel closer to their homes as they offended against greater numbers of victims. Godwin and Canter's (1997) study did not exclusively focus on

sexual homicides, however. Rather, their sample was comprised of offenders who had committed at least ten acts of homicide, regardless of the perpetrator's motive.

Godwin (1998) suggested that, in addition to studying physical locations involved in serial homicide cases, examining the murder victims' social networks could provide valuable information about the offender. This information could then be used to aid in the development of targeted policing and investigative strategies. Godwin (1998) argued that, over time, serial homicide offenders learn of places where suitable victims can be located. Studying this information to learn where offenders seek out potential victims can be used by investigative personnel to locate witnesses, surviving victims, and possibly the offender's home base area (Godwin, 1998).

Sexual Homicide Typologies

Several typologies of murderers have been developed from data gathered from known offenders. The organized/disorganized typology developed by the FBI (Ressler et al., 1986) is the most widely cited of the offender typologies (Canter & Youngs, 2003). Despite its influence, this classification scheme has been criticized because of the lack of empirical evidence supporting its validity (Canter, Alison, Alison, & Wentink, 2004; Snook et al., 2008). Others have proposed typologies that classify offenders as angry or sadistic (Beauregard & Proulx, 2002), or as being hedonistic or motivated by a need for power and control (Holmes & Holmes, 1998). Still others have suggested classification systems based on motivational dynamics (Burgess et al., 1986). Schlesinger (2004a) recommended that any criminal behavior be considered in terms of the offender's motivation, because such knowledge assists in determining the perpetrator's prognosis for repeating his crimes.

The FBI's organized/disorganized typology. The FBI created a system that classifies offenders as organized or disorganized, depending on several variables considered in crime scene analysis (Ressler et al., 1986). This allows investigators to form hypotheses regarding aspects of the unknown offender's life and personality, generating a profile to aid in the identification of the offender. However, as O'Toole (1999) has noted, interpreting behavioral evidence can be quite difficult, and no homicide scene is exclusively organized or disorganized, and the determination is made "based on a preponderance of the behavioral characteristics observed at the scene" (O'Toole, 1999, p. 46).

The organized offender. An organized offender is likely to have a history of skilled jobs, but possibly an uneven work history. His crimes are more likely to have been planned, and the scenes often demonstrate a high degree of forensic awareness. This means that the offender behaves in ways that are likely to leave little physical evidence at a crime scene and provide few clues to his identity. An organized offender generally targets victims at random, though the crime itself is likely planned in advance. The organized offender is also thought to be more likely to commit murder following some sort of precipitating stressful event (Ressler et al., 1986).

The disorganized offender. By contrast, a disorganized offender does not often plan his crimes beforehand, and is more likely than the organized offender to use a surprise or blitz attack to gain control of victims quickly. Victims are more likely to have been known to the disorganized offender prior to the homicide, and this type of offender is more likely than the organized perpetrator to kill opportunistically. His crime scenes may be sloppy and contain a great deal of forensic evidence. Offenders of this type often have poor work histories, and may display less organization in many other aspects of their lives (Ressler et al., 1986).

The mixed offender. The “mixed” offender type was introduced by the FBI in the *Crime Classification Manual* (Douglas, Burgess, Burgess, & Ressler, 1992). Mixed offenders are those whose crime scenes show evidence of both organized and disorganized features. Many offenders fall into this final category, since a combination of organized and disorganized elements may occur during the commission of a homicide for various reasons. These could include the presence of multiple offenders, emotional escalation on the part of the perpetrator, or unanticipated events that occur during the crime, such as resistance by the victim (Douglas et al., 1992). A mixed scene may display some evidence of planning, but poor efforts to conceal the victim’s body, and general disarray. The offender may be young, and may engaged in a great deal of manual violence. In addition, the offender may have used drugs or alcohol either prior to or during the homicide itself (Douglas et al., 1992).

Criticisms of the organized/disorganized typology. The utility of this typology has been questioned by those who point out that this dichotomous system does not sufficiently distinguish between offender groups (Snook et al., 2008) and that it provides little in the way of detail with regard to explication of the concepts and theory underlying the proposed typology (Canter et al., 2004). Canter and colleagues (2004) suggest that the FBI’s organized/disorganized classification system has likely been affected by what they have termed “the Hollywood effect.” This occurs when largely unsubstantiated models are featured in widely disseminated media sources and are thus given an air of extra credibility. This results in the ideas becoming part of apparent expertise that juries and laypersons accept (Canter & Youngs, 2003). Because the FBI’s organized/disorganized typology is the most widely cited of such offender classification systems, it is subject to being referred to and “often drawn upon by authors without apparently realizing, or at least declaring, that is what they are doing” (Canter et al., 2004, p. 297).

Canter and colleagues (2004) have also criticized the study of 36 sexual murderers on which the organized/disorganized typology was based (Burgess et al., 1986). The problematic aspects of the study include its lack of a structured interview protocol for obtaining information from the offenders; the use of a small convenience sample; and the fact that the offenders were classified into dichotomous groups based on behaviors and characteristics that researchers believed would discriminate between the offender groups. Additionally, no subsequent empirical examinations of the typology's reliability on other offenses or types of offenders were conducted (Canter et al., 2004).

In an effort to investigate the validity of the organized/disorganized typology, Canter and colleagues (2004) studied the third homicide in a series for each of 100 convicted serial homicide perpetrators. The researchers used the same selection of data and inclusion criteria that were utilized in the FBI's original study (Burgess et al., 1986). All of the homicide cases were from the United States, and archival data were used. The authors explained that the rationale for examining behavioral characteristics of the third homicide in each series was that any "style" of offending would be most likely to be evident at the crime scene by the offender's third offense (Canter et al., 2004). A set of behavioral indicators was coded, with each behavior noted as present or absent. If the organized/disorganized typology were supported, then some features would tend to co-occur more often in one classification than another, and thus crime scenes could be distinguished based on these co-occurring aspects. The authors used Smallest Space Analysis (SSA) to investigate which behavioral aspects were more likely to co-occur. However, analyses indicated that disorganized features were less common, in general, than organized ones. Examination of the SSA distribution suggested that organized features may simply be more typical of serial murder cases. Thus the behavioral characteristics that often co-occur in a series

of homicides may be due to their general frequency in this type of crime, rather than because of the offender's membership in either the organized or disorganized category. The authors concluded that the identified behavioral features that were investigated in this study were "neither coherent in consistently being part of similar crimes, nor [were] they distinct in discriminating between crime scenes" (Canter et al., 2004, p. 307), and that no strong support for the organized/disorganized typology was demonstrated.

Other offender typologies. Beauregard and Proulx (2002) studied 36 sexual homicide perpetrators who were incarcerated in Quebec in 1998 in order to develop a typology of such offenders based on characteristics of the offense, offender, and victims. Cases included in this sample had to meet at least one of the Ressler and colleagues (Ressler et al., 1988) criteria for categorization as a sexual homicide. All offenders included in the study had murdered at least one female victim who was at least fourteen years old. Analyses of 24 variables related to offenders' *modus operandi* found that nine were significantly related to others, so these variables were used to develop two profiles of the offending process: sadistic and anger. Twenty (55.6%) of the offenders in this study fit into the anger typology. Features of this type were that the sexual homicide was unplanned, victims were not preselected, bodies were not moved after death, and there was little use of restraints. Sixteen (44.4%) of the offenders studied were classified into the sadistic type, in which the sexual homicide was premeditated, typically with stranger victims who were pre-selected and subjected to humiliation during the homicide. Sadistic offenders were more likely to use restraints, to commit the offense in a controlled manner, and to be physically aggressive toward victims before killing them (Beauregard & Proulx, 2002).

Holmes and Holmes (1998) posited five types of serial murderers. Type Three, the hedonistic killer, is sexually motivated. In this typology, this type of offender may be a lust killer, who murders for sexual gratification, or a thrill killer, who murders for the pleasure and excitement of killing another person. Type Four is the “power or control killer,” who derives pleasure and gratification from controlling a victim, and is motivated by the need to dominate another person (Holmes & Holmes, 1998). Another typology of sexual homicide offenders was developed by Keppel and Walter (1999), and was based on an earlier classification scheme for rape offenders. Keppel and Walter offer information regarding an offender’s criminal history based on category membership. For instance, the power-assertive offender may have a history of property crimes, while the power-reassurance murderer is more likely to have a history of involvement in fetish activities, trespassing, and larceny. The anger-retaliatory killer is likely to have a violent history. The final type in this scheme, the anger-excitation murderer, is described as possibly appearing “conventional” to others, and is perceived as likeable, but unremarkable. He may not have a documented criminal history, and gains sadistic pleasure from inflicting pain or fear upon victims (Keppel & Walter, 1999).

Motivational typologies. Other scholars have advocated the use of motivational typologies to categorize homicide perpetrators. For example Burgess, Hartman, Ressler, Douglas, & McCormack (1986), suggested a motivational model for sexually-motivated homicide involving five components: ineffective social environment, formative events during youth, patterned responses to these events, actions toward others as a result of the patterned responses, and a “feedback filter” that relates to the perpetrator’s reaction to his homicides. Burgess and colleagues (1986) proposed that inter-relationships between the five components create a system that eventually reinforces the offender’s violent behavior.

Schlesinger (2004a) also recommended the use of a motivational typology of murder, though its structure differs from that of Burgess and colleagues. In this classification scheme, a broad type of crime, such as homicide, cannot be fully understood unless one examines the motivation for the act. The model proposes that motivation can be conceptualized on a continuum, with purely external motivating factors at one end, and purely internal factors at the other. Externally-motivated homicides might include those committed for political reasons or in the context of state-sanctioned violence. The majority of murders are situationally motivated, according to this typology, meaning that circumstantial factors led to the homicide. An example of this type of homicide would be an argument between victim and offender that escalates to murder. In this motivational framework, sexual homicides are classified as compulsive or catathymic. Compulsive homicides are those which are likely to be repeated, as the offender feels an inner drive to act. Catathymic sexual homicides result from a breakthrough of underlying sexual conflicts (Schlesinger, 2004b). Schlesinger further notes that there is a high potential for recidivism among offenders who have already committed a sexually motivated crime involving catathymic or compulsive dynamics (2004b).

Motivational Dynamics

Knowing what led an offender to commit his criminal acts is of critical importance. Any behavior, including homicide, can be motivated by a number of factors. In order to understand a single instance of a particular behavior, one must distinguish between offenders who have differing motives. To study, for instance, homicide in a broad manner without making distinctions between murders due to situational variables and those driven by an offender's sexual dynamics, can lead to confusing, misleading, or incorrect conclusions which may have limited practical utility. In a study comparing single and serial homicide offenders, Kraemer,

Lord, and Heilbrun (2004) found that serial homicides are significantly more likely than single-victim homicides to involve death by strangulation, multiple “event” sites (approach, crime, and disposal locations), and to be committed by an offender who is a stranger to the victim(s). These results provide support for the distinction that has been proposed between single homicides and serial homicides.

Similarly, a recent study (Trojan & Salfati, 2010) compared the criminal histories of serial and single homicide offenders to examine whether perpetrators in either group tended to specialize in one type of offense over another. However, motivational dynamics were not accounted for in sample selection, and sexually motivated homicides are not distinguished from non-sexual murders. This makes it difficult to state with certainty whether any observed differences between these groups reflect true differences between single and serial murderers, or if the results could be better explained by differences in offenders’ motives. The group of single homicide offenders in this study included over a hundred incidents in an urban location, in which homicides are typically motivated by situational factors, and committed by Black men against Black men. The serial offender group, however, was comprised of only nine cases spanning multiple jurisdictions in the U.S., with predominantly Caucasian male offenders and female victims, often involving sexual components. Therefore, it is possible that any observations about offender specialization or other characteristics are actually due to the fact that most of the crimes in one sample were situational, while the majority of crimes in the other were driven by the offenders’ sexual desires.

Comparing homicides categorized only by number of victims, without considering the offenders’ motives, may not provide the most accurate explanation of the distinctions found. Schlesinger (2004a) offers the example of a contract murderer who, in terms of number of

victims, may be considered a “serial” homicide perpetrator. However, the motive for these killings is profit, rather than a compulsion to act on his need for sexual gratification. It is this inner drive to act out on sexual aberrance that distinguishes sexual homicide perpetrators from other homicide offenders, rather than the number of victims in a case. Since single-victim homicides are often carried out due to situational factors, and serial homicides are typically sexually-driven, the results of studies that do not consider motivational dynamics in their analyses (e.g., Kraemer et al., 2004; Trojan & Salfati, 2010) may be better understood as differences in motivational characteristics that tend to be associated with the number of victims in a case.

There has been some controversy regarding the determination of motive in cases of serial homicide, with some arguing that apparently sexual crimes may in fact be motivated by anger (e.g., Beauregard & Proulx, 2002), or a desire for power or control over the victim (e.g., Cook & Hinman, 1999). However, in the earliest scientific study of sexual homicide, Krafft-Ebing (1886) noted that “sexual desire must always be regarded as the basis of sadistic inclinations,” (p. 57). Myers and colleagues support the notion that homicides involving sexual dynamics, particularly those that occur in series, are driven by the offender’s sexual compulsions, rather than by anger or a need for power (Myers, Husted, Safarik, & O’Toole, 2006). These authors make several points regarding the problems with other motivational hypotheses. For instance, the frequency with which sexual components are included in a series of homicides is not well-explained by a need for power or control as the primary motive for the crimes. Additionally, young, reproductive-aged females are over-represented as victims of rape-murder, and it has been noted that victims of serial homicide quite often reflect the offender’s sexual preference. A motive other than sexual gratification would not be consistent with these findings, nor with the

prevalence of violent sexual fantasies reported by serial homicide perpetrators. In response to those who posit that serial murders are committed due to anger or rage, Myers and colleagues argue that, according to offenders' reports, these murders are generally committed in states of pleasure or excitement, and it is difficult to be simultaneously angry and sexually aroused (Myers et al., 2006).

An additional difficulty that arises in examining the motivational dynamics of a given crime is that they are often hard to determine, as sexual elements may not be easily observable at the crime scene (Morton & Hiltz, 2008). The offender's self-report of receiving sexual gratification from the commission of a homicide is often the best source of information regarding motive (Myers et al., 2006), but offenders are frequently uncooperative in providing such information to investigators (Liebert, 1985). Greenberg (1998) pointed out that sex offenders as a broad group are notoriously unreliable when providing historical information, and Folino (2000) noted that denial was common among the sex offenders he studied, particularly with regard to sexual homicide. Offenders may tend to minimize or deny sexual motivation when offering explanations of their crimes, more often making rationalizations and attributing the murders to anger or loss of self-control (Hazelwood & Michaud, 2001; Myers et al., 2006). Law enforcement personnel may fail to recognize the role of sexual dynamics in a given homicide case, as well. This can occur if evidence of sexual activity or sexual motivation is not apparent at the crime scene, or if the offender stages a scene to make the case appear to have been driven by other factors (Hazelwood & Michaud, 2001).

Schlesinger (2004a) has pointed out that a sexual homicide crime scene may or may not contain any overt sexual components or obvious display of genitality, and so a homicide that was in fact committed in order to provide sexual stimulation or satisfaction to the perpetrator may not

be documented as “sexual” by investigators. Scenes at which a sexual homicide have occurred can be disorganized, messy, and disturbing, which may lead investigating officers, the media, and the public to assume that the offender must have been enraged at the time of the crime (Myers et al., 2006). Within the criminal justice system, there may also be resistance to uncovering sexual motivation for crime (Liebert, 1985). For example, there have been ongoing debates in the literature and in the criminal justice field regarding whether rape is violent or sexual in nature. The idea of a non-sexual theory of rape may be applied to the phenomenon of sexual homicide by some law enforcement officers or scholars (Myers et al., 2006).

Correctly assessing an offender’s motivation for a given crime is of great importance in determining his risk of future dangerousness or re-offense. Schlesinger (2004a) offered the following example: an offender who commits a fairly minor offense, such as voyeurism, may only receive a relatively small penalty, such as brief incarceration or probation. However, if this offender has sexually violent fantasies and was motivated by a compulsion to act in order to achieve sexual gratification, he is potentially more dangerous than a person who committed a homicide driven by situational factors. In order to consider the likelihood of future offending, one must account for the offender’s motivational dynamics, rather than only the crimes charged (Schlesinger, 2004a). However, due to the possibility that sexual elements of a crime are not visible at the scene, an offender’s motivation may be quite difficult for homicide investigators to assess, and law enforcement agencies have been cautioned not to commit investigative resources to determining motive rather than identifying the perpetrator (Morton & Hiltz, 2008).

Publicity, Media Attention, and Public Perceptions

Sexual homicides, particularly those occurring in a series, receive large amounts of publicity and media attention (McNamara & Morton, 2004). The public’s interest in serial

murder in particular has been attributed to sensationalistic reporting on such cases by the news media and entertainment industry (Wolf & Lavezzi, 2007). In turn, “society evinces this fascination [with serial killers] in music, films, and literature” (Wolf & Lavezzi, 2007, p. 691). Stories about serial homicide “often dominate print and TV news” (Lee & DeHart, 2007, p. 5). A study of nearly 3,000 homicides that occurred in England and Wales between 1993 and 1997 examined how often the crimes were reported in three newspapers (Peelo, Francis, Soothill, Pearson, & Ackerley, 2004). Results indicated that the likelihood of increased reporting about a homicide increased as the age of the youngest victim in a case decreased. Reporting frequency also increased if at least one victim in a case was a female, and as the number of victims in a case increased. For sexual homicides, defined in this study as crimes involving either a sexual attack or sexual mutilation, reporting rates for all three newspapers were around 70 percent. However, when all homicides of any type were examined, only about 40 percent were reported in at least one of the newspapers studied. The most important factor affecting the likelihood of a given homicide case receiving newspaper coverage was “circumstance,” with sexual homicides being most likely to be reported. The second most important factor was the number of victims in a case (Peelo et al., 2004). This study supports the idea that media reports on homicide are selective, with some cases more likely to garner media attention than others. A study conducted by Soothill and colleagues (Soothill et al., 2004), examined the number of “mega-cases” of homicide appearing in several newspapers in England. A mega-case was operationalized as a murder case that had either generated more than 150 newspaper stories over the time period studied, or a case that had been discussed in more than 60 news stories in one year. The authors provide brief descriptive and identifying information for the 13 mega-cases identified during the study period, such as The Yorkshire Ripper case. Using the identifying information provided, it

appears that five of the 13 cases involved one or more sexually-motivated murders. Taken together, these five cases contributed to nearly 3,000 newspaper stories during the time period studied (Soothill et al., 2004).

Ressler, Burgess, and Douglas (1988) have noted that the mass media are often the publishers of information on sexual homicide, and that they produce sensationalized reports of these crimes. The fact that some cases are more likely to receive greater coverage in the media indicates that some types of cases are more likely to influence public opinions about homicide in general (Peelo et al., 2004). Gibson (2006) investigated twelve cases of serial homicide, including nine cases of serial sexual murder, all of which received large amounts of mass media attention. Media involvement in these cases was noted to have positive and negative consequences for the investigations. While the media can assist investigators in disseminating safety information to the public and facilitating apprehension of the perpetrator, misbehavior on the part of reporters has been documented in high-profile murder cases. This includes harassment and pursuit of innocent suspects, reporting cases in a way that is sensational and insensitive to the victims' families, and covering cases in a way that is biased or that includes misinformation or deliberate fabrication of facts. Mass media coverage of sexual homicides can result in several negative consequences, such as providing information about the investigation to the perpetrator, creating "celebrity murderers," and generally interfering with the investigation (Gibson, 2006).

How such crimes are reported can affect public beliefs and lead to misinformed thinking about these crimes. For example, the prevalence of Black serial killers is underestimated by the public because the known cases receive little media attention (Walsh, 2005). A study by Herkov and Biernat (1997) examined residents of a community experiencing a series of sexual murders.

Of 184 questionnaires analyzed, 82% of residents responded that they paid “much” attention to news accounts of the murders, with local newspapers, radio, and television stations endorsed as the most popular sources of information on the crimes. When asked about which sources of information they found most accurate, 56% of respondents rated police conferences as most accurate, while 30% rated local newspaper reports most accurate. Many (78%) of the citizens stated that hearing about the murders affected their sense of safety, and indicated they were most upset by hearing or reading details of the mutilations, by sensational reporting, and by reports of interference with the investigation (Herkov & Biernat, 1997).

In a comprehensive study of public perceptions of crime severity, sexual homicide ranked second after bombing an inhabited building (Wolfgang, Figlio, Tracy, & Singer, 1985). Warr and Stafford (1983) noted that the seriousness of an offense is a determinant of how fearful people are of that crime. Sexual homicide, though uncommon, arouses and frightens the public (Hazelwood & Douglas, 1980), and serial sexual homicides in particular have been noted to leave “entire communities gripped with fear,” (Lee & DeHart, 2007, p. 3). There have long been anecdotal reports regarding the impact of serial sexual homicides on the public, such as increases in sales of firearms and enrollment in self-defense courses (Lee & DeHart, 2007). In the early 2000’s, a serial sexual homicide perpetrator was active in the Baton Rouge, Louisiana area, and was later linked through DNA evidence to seven victims. Researchers (Lee & DeHart, 2007) were interested in how these homicides affected residents of the area, and predicted that individuals who were more similar to the victims of these crimes would report higher levels of fear and engage in more protective measures. Data from annual surveys of Baton Rouge residents from 2000 to 2005 indicated that 55.8% of respondents reported an increase in their fear level due to the serial killer, and 46.1% reported an increase in their use of protective

measures, such as purchasing guns, pepper spray, or guard dogs, or enrolling in self-defense classes. Regression analyses showed that those who reported an increase in fear were more than 1.5 times as likely as those not reporting increased fear to have taken some protective measures. Additionally, Lee and DeHart noted that the impact on public attitudes “was most pronounced among those who were likely in the pool of potential victims” (2007, p. 24).

Criminal and Antisocial Backgrounds of Sexual Homicide Perpetrators

Serial killers have frequently been characterized in the media as evil monsters (Kocsis, 2008), leading to beliefs among the public that sexual homicides are committed by sex fiends with low intelligence, abundant aggression, and a long history of mental illness and sexual offenses (Brittain, 1970). The typical media portrayal of a serial murderer often includes a history of drug and/or alcohol abuse (Wolf & Lavezzi, 2007). Laypersons’ perceptions are not the only ones affected by stereotypes about sexual homicide offenders. Investigators can also make the mistake of attributing especially brutal sexual murders to a criminal with an extensive history of sex offenses (Ressler et al., 1988). However, it is not uncommon for homicide perpetrators to have no record of prior offenses (e.g., Duffy & Hirshberg, 1965), and prior research has suggested that many perpetrators of sexual homicide have no criminal history at all, much less one consisting entirely of sexual offenses (Brittain, 1970; Ressler et al., 1988). For example, in a study of twenty sexually sadistic serial murderers, Warren, Hazelwood, and Dietz (1996) reported that 65% had no arrest record before their apprehension for murder. Another study of 38 men who had attempted or committed sexual homicide found that 42.1% had no prior criminal charges (Langevin, 2006). These results indicate that there is a subset of sexual murderers who have never been arrested or charged with any crime prior to committing sexual homicide. In a study of 38 serial sexual homicide perpetrators, Schlesinger and colleagues found

that eight men (21.1%) in their sample had no documented criminal history. The results of other studies have been varied, however. Langevin and colleagues noted that only one of the sexual murderers in their sample did not have a prior criminal record (1988).

There is a somewhat higher likelihood, however, that a person who commits a homicide has a previous criminal record. A study of all those arrested and charged with murder or manslaughter in Illinois in 2001 found that 42.6% had at least one felony conviction in the period from 1990 to 2000 (Cook, Ludwig, & Braga, 2005). These offenders were compared against a group of controls, who were Illinois residents within the same age range, but who had not been arrested for murder or manslaughter in 2001. Only 3.9% of the control group had a previous felony conviction, leading the authors to conclude that homicide offending in Illinois is concentrated among those with a criminal history (Cook et al., 2005). It is important to note that this study considered all types of homicides, and did not distinguish between them based on motivational dynamics or number of victims. Work by Langevin and colleagues (1988) compared sexual homicide perpetrators to a sample of offenders who had committed sexually aggressive acts, not including homicide. Results showed that the majority of offenders in both groups had a previous criminal record, with 85% of the sexual aggressors having prior charges, and 92% of the sexual murderers (Langevin et al., 1988). Compared to the sexual aggressors, more of the sexual homicide perpetrators had histories that included sadism, voyeurism, fetishism, transvestism, or sexual identity disturbance, prior to committing homicide (Langevin et al., 1988). Hickey's (2006) study found that 68% of serial murderers had prior arrests or convictions. In this sample, 45% had prior property-crimes charges, 38% had committed prior sexual offenses, and 8% had a history of assault. Godwin (2000) found similar results in a sample of 107 serial murderers, with over 60% having a prior record including robbery, burglary,

or larceny, and only 25% having committed previous violent crimes. A study of 38 men who had attempted or completed sexual murder (Langevin, 2006) found that over half the sample had committed both violent and non-violent crimes, with 28.9% having previously failed on some type of conditional release, 36.9% having committed at least one prior sexual crime, and 52.6% having committed prior violence.

Nicole and Proulx (2007b) found that the majority of the sexual murderers in their sample had been previously convicted of additional crimes. About one-third of Grubin's (1994) sample of sexual homicide offenders had committed prior rapes, and about half of the offenders had committed acts of previous violence. In a study of seven serial murderers, Beasley (2004) found that three offenders had minimal criminal histories, while the other four had extensive arrest records. As in other samples, these offenders had arrests for crimes such as drug possession, robbery, larceny, burglary, and assault. A few had histories which included sexual offenses, such as sodomy, voyeurism, and solicitation of prostitutes. Singer and Hensley (2004) studied three serial homicide perpetrators and found criminal histories including arson, robbery, burglary, and theft, as well as sex offenses. Case studies of two sexual homicide offenders in Argentina (Folino, 2000) indicated that one had previously committed theft and rape, as well as engaging in other aggressive acts and drug abuse. The other offender had a history of substance use, property crime, and burglary. Hazelwood and Douglas (1980) noted that sexual homicide perpetrators may have engaged in voyeurism or thefts of female clothing in adolescence. A major study of 36 sexual homicide offenders (Burgess et al., 1988) found that patterns of criminal conduct among the group tended to become more serious and violent during adolescence and into adulthood, including prior involvement in burglary, arson, assault, rape, and non-sexual homicide. In a study by Schlesinger and colleagues, the 30 offenders who had

committed prior crimes were responsible for 180 criminal transactions, each of which could involve multiple types of offenses. These 180 criminal incidents were independent of the sexual homicides committed by the men in the study sample. Analysis showed that most of the offenders' prior crimes were violent in nature, such as attempted murder, sexual assault, or various types of physical assault. In addition, the perpetrators studied had also committed burglary, theft, weapons offenses, and drug-related crimes (Schlesinger et al., 2010).

Difficulties associated with use of official records. A significant practical dilemma exists with regard to the study of offenders' criminal backgrounds. Studies that have been done to date rely mostly on official arrest and conviction records or other formally documented accounts of the perpetrators' prior offenses. Additionally, investigators also commonly request offense histories in order to see if a suspect has engaged in previous criminal behavior, and whether the prior crimes are similar in nature to the open case in question (Keppel & Birnes, 2003). However, official records are thought to be underestimates of offenders' true criminal histories, because it is often the case that offenders have committed crimes for which they were not apprehended or formally charged (Greenberg, 1998). For instance, in the Ressler, Burgess, and Douglas (1988) sample, eight out of fourteen sexual murderers reported that they had committed between one and six sexual assaults for which they were not apprehended. Three offenders reported more than 25 such assaults. In a study of 14 sexual homicide perpetrators, two of the offenders had been involved in prior rape cases, and one of those men indicated that the rapes had not come to the attention of police (Folino, 2000).

To further compound the problem, offense listings in official arrest and conviction records may differ from the criminal acts that were actually committed. This may occur for a variety of reasons. For example, an arresting officer may charge a suspect with selling drugs, but

a prosecutor later amends the charge to drug possession. Plea bargaining and lack of evidence may also contribute to discrepancies between the criminal behavior itself and the official record of convictions (Greenberg, 1998). A severe attack in which the perpetrator attempted to kill the victim may be reduced through plea bargaining to a conviction for aggravated assault. In addition, official records may not reflect sexual aspects of some crimes, even when there is evidence that the crimes were sexually motivated. Schlesinger and Revitch (1999) found that it was not uncommon for perpetrators of sexual homicide to have histories of committing sexually motivated burglaries, in which sexual items such as undergarments were stolen, or in which the offender received sexual gratification from the act of burglarizing a home. As early as 1965, Duffy noted in his personal observations of prison inmates and their histories that many sexually motivated burglaries were simply recorded as burglary convictions, without mention of any sexual aspects of the crimes (Duffy & Hirshberg, 1965). Duffy described an inmate with a three-page “rap sheet” for burglary, who had no official record of sex offenses, even though the offender carried weapons and left his burglary victims badly injured, clearly displaying motives for his crimes beyond monetary gain. This offender committed additional home invasions and often raped the occupants, but agreed to plea bargains that reduced these crimes to simple burglary charges (Duffy & Hirshberg, 1965).

It has been noted that many violent acts, both sexual and non-sexual, are undetected and would be underestimated by relying solely on conviction data (Prentky et al., 1997). Yet many studies rely only on “rap sheets” when investigating offenders’ prior criminal acts. A study comparing the criminal backgrounds of sexual murderers and sexual aggressors found that the two groups did not differ in terms of prevalence of prior sex crimes, but the homicide offenders tended to have more violent histories than the non-homicidal group (Nicole & Proulx, 2007b).

However, this study examined only those offenses for which offenders had previously been convicted, thereby omitting criminal acts that were not prosecuted, or those not resulting in arrest. The exclusion of these prior behaviors likely resulted in underestimates of the offenders' true criminal histories, and may account for the overall lack of significant differences between the groups studied. This is particularly relevant to sexual offenses, which are commonly not documented as such on official records. Thus an offender may have been convicted of a non-sexual crime for behavior that was in fact sexually motivated.

Some authors have recognized the need for integrating official arrest and conviction data with criminal background information from other sources. In a study of recidivism rates among a sample of sexual homicide perpetrators, Hill and colleagues included in their analyses offenses that were officially registered by police, sentenced by the court, and "all actions that could have resulted in an official sanction," (Hill et al., 2008, p. 8). Liebert (1985) asserted that assuming previous convictions are a comprehensive representation of a person's predilections for violent offending is likely to provide inaccurate information and lead to invalid conclusions about the offender. Others have recommended that studies of criminal histories use official records synthesized with offenders' self-reports of additional offenses (Wright, Pratt, & DeLisi, 2008).

Recidivism and risk assessment. Definitions of recidivism differ across studies. Some researchers limit their definitions to include only the same type of sex offense as the original crime, while others may include any subsequent sexual offense, or the commission of a physically aggressive non-sexual act. Others may consider recidivism to be the commission of any subsequent criminal offense, including property offenses, or probation and parole violations. Recidivism rates also depend on the type of sample selected in a study, and the length of the study's follow-up period (Greenberg, 1998). While it is not possible to specifically predict a

single individual's likelihood of committing additional crimes in the future, it is possible to assign ranks or categories to describe levels of risk for groups of offenders (Greenberg, 1998).

In one of the few longitudinal studies of criminal reoffending among sexual homicide perpetrators, data were collected on 166 men who had committed at least one sexual homicide in Germany from 1945 to 1991 (Hill et al., 2008). Three types of offenses were used in evaluating recidivism: sexual, non-sexual violent, and non-violent offenses. Of the original sample, follow-up data were available for 139 men. Ninety offenders were released for the original sexual homicide. Of these, two were later convicted for attempted homicide, and one for homicide. Fourteen men in the study committed further sexual offenses, and the estimated rate of sexual recidivism over a six-year post-release period was 12%. Higher rates of reoffense for non-sexual violent crimes were found among offenders whose criminal histories included sexual and non-sexual violent acts, and for offenders who had been under age 18 at the time of their first sexual offense. For violent crimes, recidivism rates were higher among offenders who had committed sexual homicide as an adolescent or young adult, and a sex offense as an adolescent. Results indicated that most violent reoffending occurred in the first five years following an offender's release from custody, while the risk of sexual reoffense persisted over time (Hill et al., 2008). Recidivism rates were also estimated for a period of twenty years following release from custody. The estimated reoffense rate was 23.1% for sexual crimes, 18.3% for non-sexual violent crimes, 35.7% for violent crimes, and 58.4% for non-violent crimes (Hill et al., 2008).

In order to assess recidivism risk, Langevin (2006) evaluated a sample of 38 men who had attempted or completed at least one sexual homicide from 1973 to 2005 using two actuarial risk assessment instruments: the Violence Risk Assessment Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 2006), and the Sex Offender Risk Assessment Guide (SORAG; Quinsey et al.,

2006). These instruments were chosen because they address risk factors for future reoffense that are not well-accounted for in other risk assessments, such as sexual history and preference, offender mental illness, and history of violence and crime. The VRAG and SORAG were coded based on information that would have been available to evaluators prior to the commission of the sexual homicide, such as an offender's criminal history. It was hypothesized that the instruments would classify these offenders at high risk of violence, since they were selected into the sample based on having committed severely violent acts. Of the 38 men in the sample, 28 had been convicted of murder or manslaughter, and 10 were found not guilty by reason of insanity. Ten others had victims who were left for dead, but survived the attempt on their lives. Scores on the actuarial instruments are useful in predicting violent reoffending over a seven year period. In this study, the VRAG would have classified only 21% of the men in the sample as high risk, while the SORAG would have indicated 26.4% were high risk. The VRAG would have classified 15.8% of the offenders as low risk of reoffense, while the SORAG would have classified 13.2% in this group over a seven year follow-up period. Both actuarial tools performed more accurately when used to evaluate offenders with no prior criminal history (Langevin, 2006).

Schlesinger (2001b) identified ten "ominous signs" for clinical practitioners to consider when evaluating individuals who are at risk of potentially committing sexual homicide. Some of the signs relate to the individual's personal history, such as experiencing childhood abuse and having inappropriate contact with one's mother. Some of the other proposed risk factors have indirect connections to antisocial behavior, such as a history of pathological lying and manipulation, the presence of sadistic fantasies with a compulsion to act on them, and a need to control and dominate others. Additional risk factors have more direct associations with prior

criminal offenses. Among these are repetitive fire-setting; cruelty to animals, especially cats; voyeurism, fetishism, and sexual burglary; and unprovoked attacks on females. The co-occurrence of numerous signs is indicative of a worse prognosis for the individual. Schlesinger (2001b) acknowledges that this system of indicators has not been subjected to empirical validation, and that it is not intended for use in predicting future events. Rather, these issues should be considered in evaluative contexts, and the presence of a combination of ominous signs should be used to identify areas of clinical concern for the practitioner. However, as the author points out, an individual who presents with several of these signs is highly likely to be experiencing some difficulty with his psychological adjustment (Schlesinger, 2001b).

It is important to note that there is no single identifiable cause or factor that inevitably leads to the development of a sexual homicide offender or serial murderer. Research suggests that these offenders develop over time and due to the presence of a multitude of factors that all contribute to the individual's subsequent criminal and antisocial behavior. The offender's decision to act on his fantasies and desires is probably "the most significant factor" (Morton & Hilts, 2008, p.11).

Offense specialization. The question of whether offenders, particularly those who have committed sexually motivated crimes, specialize in certain types of crimes has been addressed empirically. Because of media portrayals, a commonly-held notion is that a sexual offender has an extensive history consisting only of sex crimes (Brittain, 1970; Ressler et al., 1988). However, the bulk of the existing literature on this topic has indicated that offenders tend to be generalists, who commit a variety of offenses, and who "are not terribly picky about what kinds of deviant activities they deem worthy of their participation," (Wright et al., 2008, p. 382). An

examination of 16 non-serial sexual murderers in Argentina found that, while none had been charged with additional sexual homicides, 56% had committed other crimes (Folino, 2000).

Using information obtained from interviews and Royal Canadian Mounted Police (RCMP) files, Nicole and Proulx (2007b) compared the criminal histories of a sample of sexual aggressors with the offense backgrounds of a sample of sexual homicide perpetrators. Results indicated that 80.9% of sex offenders and 71.8% of sexual murderers had criminal records, although abuse of drugs and inappropriate behaviors during childhood (such as lying, running away, being reckless, and being socially isolated), were more prevalent in the sexual homicide sample than the group of sexual aggressors. There were no significant differences between the groups with regard to number of previous convictions for sex crimes. The sexual homicide group as a whole had more violent offenses in their histories than sexual aggressors. Overall, the study's results did not support the idea of offense specialization: "nonsexual crimes predominate in the criminal career of sexual aggressors and sexual murderers," (Nicole & Proulx, 2007b, p.44). In a study of twenty sexually sadistic serial murderers, (Warren et al., 1996), the group of offenders who had committed previous crimes had histories including non-sexual offenses, such as robbery, weapons charges, and counterfeiting.

Miethe, Olson, and Mitchell (2006) also found that sex offenders who had not committed murder typically did not fit the widely held stereotype of being more specialized and persistent in their offenses than are the perpetrators of non-sexual crimes. Hanson and Bussiere (1998) performed a meta-analysis of 61 studies, including 28,972 sex offenders. Results indicated that a history of sex offenses, a criminal lifestyle, and deviant sexual preferences were predictors of sexual recidivism. In addition, higher recidivism rates were found among offenders who had stranger victims or male victims, were young at the time of their first offense, were single, or had

not completed sex offender treatment (Hanson & Bussiere, 1998). However, the offenders included in the meta-analysis were examined as a broad “sex offender” group, as well as child molester and rapist subgroups, but the study did not focus specifically on sexual homicide perpetrators.

Hill and colleagues (2008) specifically investigated a sample of sexual homicide offenders in Germany in order to examine the prevalence of recidivism in this group. Follow-up data were available for 139 men. Of these, 14 committed subsequent sexual offenses, with nine being convicted for rape or sexual assault during the follow-up period, and three men being convicted of sexually assaulting a child. Recidivism rates were higher among offenders who had not specialized in sexual offenses.

Only a few studies have compared single and serial homicide offenders with regard to criminal backgrounds. In one examination of 494 single homicide perpetrators and 160 multiple murderers, results suggested that criminal histories between the groups were similar, and that the group of multiple murderers did not specialize in homicide (Wright et al., 2008). Wright and colleagues noted that it is possible for an offender to specialize in homicide over a short period, but to have committed various types of crimes before the homicides. However, results did not support this notion, because the histories of multiple murderers in this sample were not more specialized than those of the single homicide group. The multiple homicide offenders were, however, more likely to have committed a prior rape than the single homicide perpetrators. About one-third of each group had no convictions prior to the homicide that led to their inclusion in the study (Wright et al., 2008). It is important to note, however, that multiple homicide offenders in this study were defined as those who had committed more than one murder over the course of a criminal career. As a result, the multiple homicide group may have included serial,

spree, mass, and contract murderers, among others, all of whom likely differed with regard to motivational dynamics and underlying psychological factors.

A more recent comparison of the criminal histories of serial and single homicide offenders found that 79% of serial murderers and 72% of single murderers could be classified as “specialists” (Trojan & Salfati, 2010). However, only two broad categories of offenses were considered: Instrumental and Violent. An offender classified as a specialist in this study had to have engaged in twice as many offenses of one type than of the other. The Instrumental category included crimes such as burglary, theft, robbery, fraud, and auto theft. All sexual offenses were coded as “sex” crimes, and were also included as Instrumental offenses (Trojan & Salfati, 2010). Therefore, a man who committed crimes as diverse as vehicle theft, rape, robbery of a convenience store, and indecent exposure could still be considered a specialist in this study.

A number of additional issues with the Trojan and Salfati study are related to the exclusive use of officially documented arrest histories. Because only those offenders who had official arrest and conviction records were included in the study’s analyses, the actual offending patterns of those who managed to avoid apprehension were not considered. Further, analyses only included those crimes officially documented in the arrest and conviction record as having occurred before the perpetrator’s first homicide, even if the offender murdered multiple victims over time. Conclusions made about criminal specialization and generalization did not include information about any crimes that were committed between the murders in a series. This leaves open the possibility that an offender who had specialized in one type of crime prior to committing homicide might engage in additional types of offenses later in his criminal career. An additional issue is that data analysis was performed using only the most serious offense occurring during each criminal transaction, according to the arrest and conviction record.

Therefore, an offender whose actual behavior at the scene involved sexually assaulting and murdering a victim before stealing her jewelry and car may appear to be a criminal specialist if only the murder is considered. It is also important to note that motivational dynamics were not considered, so sexual homicide perpetrators were not distinguished from those driven by situational characteristics, profit, or other factors. Those who committed sexually motivated murder could differ in rate of offense specialization, as their crimes would be driven by desire for sexual gratification and a compulsion to act on their sexual aberrance (Schlesinger, 2004a). However, as Turvey (2008) noted, even a serial homicide perpetrator may not necessarily be a criminal specialist: “An offender responsible for a series of homicides may also be responsible for a series of robberies or thefts,” (p. 327).

Temporal Features in the Histories of Sexual Homicide Perpetrators

Temporal factors associated with the offense histories of sexual homicide perpetrators, such as the time elapsing between the commission of criminal and antisocial acts has not been well-studied to date. Media portrayals also affect commonly held perceptions of sexual murderers with regard to the time intervals between their crimes. Television shows like *CSI: Crime Scene Investigation*, and movies frequently depict characters who commit vicious crimes like murder, rape, and kidnapping on a strict schedule, apparently basing these portrayals on the idea of the compulsivity of the sexual offender. For example, the book *Red Dragon* (Harris, 1991) portrays a serial murderer who kills victims only during sequential full moons. Other media examples have portrayed offenders acting out on certain dates, days of the month, or at specified intervals. Lange (1999) pointed out that psychodynamic perspectives predict that the behavior of serial murderers has its own internal dynamics, which are typically sexually related. This is congruent with the sexual nature of many serial homicides, and also predicts that cyclic

patterns exist in the offending process. Holmes and Holmes (2002) posit that serial murder occurs in “stages,” and that the compulsion to kill may drive the timing of the homicides, despite the possible presence of other preferences. In addition, events or circumstances in the offenders’ lives may prohibit them from pursuing additional victims, despite a desire to do so (Morton & Hilt, 2008). Temporal factors have also been posited to affect whether cases of serial murder are solved. Mott (1999) examined 399 unsolved serial homicide cases and found that longer periods between homicides in a series increased the likelihood of the case remaining unsolved.

Some studies of sexual homicide perpetrators have included limited information on offenders’ ages and the temporal characteristics of their crimes. (e.g. Beasley, 2004; Ressler et al., 1988). Research examining the usefulness of actuarial risk assessment instruments in classifying a known group of 38 offenders who attempted or completed sexual homicide found that 59.5% of the group had committed sexual homicide before age 26, and 24.3% had done so before age 20 (Langevin, 2006). The average age of the men in this sample at the time of their first offense was 16.1 years, though the range was from age 7 to 31. A study of recidivism in sexual homicide perpetrators (Hill et al., 2008) found that offenders’ average age at the time of their first sexual homicide was 26.5 years, but 11.4% of the sample ($N=166$) were adolescents at the time of their first murder.

Regarding the length of sexual homicide offenders’ criminal careers, past research suggests that it is not uncommon for them to remain at-large for a significant period of time. McClellan (2010) reported that, of 63 sexual murderers apprehended over a ten-year interval, 19 had been actively offending for over a decade. However, there was a subset of perpetrators ($n = 18$) who were free for less than one year between when they began offending and when they were apprehended (McClellan, 2010). Hill and colleagues (2008) estimated the “time at risk” for

the 139 offenders for whom follow-up data were available. “Time at risk” refers to the amount of time elapsing between an offender’s release and the commission of his first new offense, or the end of the follow-up period. The mean time at risk was 10.7 years for sexual offenses, 10.4 years for non-sexual violent offenses, 8.7 years for any violent offense, and 7.7 years for non-violent offenses. Results suggested that most violent recidivism occurred within the first five years following release.

In the only study to date that has specifically investigated the time patterns between homicides in a series, Lange (1999) examined the dates of homicide series committed by eleven offenders, theorizing that cyclic patterns would emerge. Though it was hypothesized that, while the dates on which perpetrators killed their victims would not be random, several factors would affect the overall series, including psychodynamic, behavioral, and cognitive variables, such that temporal patterns would not be rigid for the sample. Lange found three basic temporal patterns: attracting, repelling, and pulsing. In the attracting pattern, the time between homicides in a series decreased over time and then settled into a more stable cycle. In the repelling type, a fairly stable cycle leads to an eventual increase in the length of time between homicides. Finally, the pulsing pattern involved a repelling process followed by an attracting process. These results suggest that there is some temporal order in homicides in a series, though the ability to make strong conclusions and predictions based on this research is limited by little understanding of how non-temporal factors may affect any single offender’s behavior and the reasons why a particular offender generates one type of pattern rather than another. Additionally, Lange’s research (1999) focused only on the timing of homicides, and did not include temporal data associated with non-lethal offenses committed by the offenders. It is unknown whether any patterns exist in the commission of crime in general in this population. Additionally, the extant

research is based on a sample of serial perpetrators, and does not differentiate between motivational dynamics. The temporal characteristics that may exist in offense histories of single-victim murderers, or of offenders for whom committing homicide is sexually gratifying, have not been examined empirically.

The existing research on the phenomenon of sexual homicide suggests that there is a greater likelihood that these offenders do not commit crimes in a cyclic pattern. Rather, the behavior of individual perpetrators is often determined by numerous factors, and “can be the result of multiple offender motivations and multiple external influences,” (Turvey, 2008, p. 327). Even among offenders who are compulsively driven to act out on their antisocial desires, the majority exhibit a mixture of planning and spontaneity in their criminal behaviors (Kocsis, 2008). A crime may be extensively premeditated in an offender’s fantasy life, but the offender’s choice of when to act on these fantasies may be made impulsively, if an opportunity arises (Hazelwood & Douglas, 1980). In addition, many offenses can be the results of a precipitating event, such as a job loss, interpersonal conflict, or other incident in the offender’s personal life, which may provoke him to react violently, or to be unlikely to resist acting on his compulsions (Holmes & Holmes, 2002). Hickey (2006) provides an illustrative case of a serial homicide offender who was motivated by a need for control. Incidents in which the offender was slighted or rejected provided the catalyst for him to commit murder in order to feel he had regained control. This type of personal precipitating event, rather than habit or a preferred cycle or pattern, may better explain the timing of an offender’s crimes.

Aims of the Current Study

One broad purpose of this study was to contribute to the current knowledge about the phenomenon of sexually-motivated homicide by examining offender, victim, and offense

characteristics, and by considering the results in light of previous scholarly thought and empirical investigations on this topic. This study was also designed to address gaps in the existing literature related to the criminal and antisocial backgrounds of sexual homicide perpetrators and the possibility that temporal patterns occur in perpetrators' offense histories. Comparisons were planned between serial and non-serial sexual murderers, due to the dearth of published research examining similarities and differences between these two offender groups. It was anticipated that the relatively large sample examined in this study would provide opportunities for multivariate analyses of selected variables, which are not commonly found in the current literature on sexual homicide.

It was hypothesized that the characteristics of this sample would be largely consistent with those noted in previous publications, including offender and victim demographics, as well as crime scene variables. Regarding the criminal histories of sexual murderers, it was anticipated that a subset of the non-serial and serial perpetrators would have no officially documented criminal history, while the majority would have been arrested or convicted for one or more earlier crimes. Researchers expected that sexual murderers' criminal backgrounds would include numerous types of offenses, including violent, non-violent, and sexually motivated acts. A distinction was made between prior criminal behaviors that were officially documented in arrest and conviction records, and those that could be substantiated but had not resulted in official sanctions by the criminal justice system. Both types of antisocial acts were recorded and analyzed, and it was anticipated that the majority of the offenders in this sample would have committed a larger number of criminal acts than were indicated in official records. With regard to temporal features of offenders' criminal and antisocial histories, it was hypothesized that few

offenders would produce discernible patterns, based on the notion that their crimes would be motivated by factors that do not tend to occur in a rigid cycle.

Multivariate analyses were planned in hopes of identifying variables that would sufficiently distinguish the non-serial sexual homicide offenders from serial sexual murderers. Such factors could then be utilized in the development of models to significantly predict whether the perpetrator of a particular sexual homicide is more likely to belong to the serial or non-serial offender group. It was anticipated that a subset of the variables measured in this study would be suitable for use in creating discriminative models, which could have practical utility in conducting clinical risk assessments and could be used by law enforcement in investigative procedures.

Chapter Three

Method

Dataset and Sample Selection

The data for this research were taken from closed, fully adjudicated state and local cases that were contributed by law enforcement agencies from around the country for the purpose of research. All identifiers, including names of victims, suspects, offenders, officers, departments, and correctional agencies were removed. Only aggregate data have been reported. Because of the archival nature of this research, this was a non-random sample.

An archive containing 234 serial sexual or non-serial sexual homicide cases was reviewed to determine which cases met eligibility criteria for inclusion in this study. The exclusion criteria for this study were intentionally conservative, so that the cases remaining in each sample would constitute a homogeneous group in terms of cultural, legal, motivational, and psychological factors. In order to be included in the samples, each case was reviewed by two senior psychologists who had agreed that each contained sufficient evidence of sexual motivation, following the definition of Ressler and colleagues (1988). Cases in which a sexual motive was not demonstrated, such as those associated with contract murders, were excluded. Cases were also excluded if file information indicated that the homicide was committed to cover up a sexual offense, e.g., murdering a rape victim to eliminate a potential witness against the offender. Homicides that were committed by multiple offenders were excluded, as were homicides committed by children, as the psychological underpinnings of these types of crimes are likely to differ substantially from those committed by a single, adult perpetrator. International cases were also not included in the sample groups. A final eligibility requirement

was that a case had to contain adequate data concerning the presence or absence of a criminal history for analysis.

Two samples were planned for comparative analyses: Serial and Non-Serial. Serial (S) cases were defined as those in which an offender committed at least two sexual homicides at separate times during two or more distinct criminal incidents. This is consistent with the FBI's most recent definition of serial homicide, which involves the commission of at least two murders in separate incidents (Morton & Hiltz, 2008). Non-Serial (NS) cases were those in which a sexual homicide was committed during a single distinct criminal incident. While it was expected that the majority of Non-Serial cases would include a single sexual murder with one victim, the definition was deliberately left broad to include cases in which multiple sexual homicides were committed during one single criminal incident. The final number of cases included in this study was 139, with 93 cases in the NS sample and 46 cases in the S sample. The combined total number of sexual homicides committed by these offenders was 275. All of the offenders were male.

A number of characteristics were recorded for each offender, including race, age at the time he began committing criminal or antisocial acts, and employment status at the time of the homicide(s). When information was available, the offender's actual occupation (e.g., garbage collector, landscaper, student) was recorded for later classification and coding. Broad employment categories were then created, based on the occupations noted for the offenders in the sample. Four classifications were used: unemployed, unskilled or blue collar work, semi-skilled work, and unknown. No category was created for skilled/professional jobs, because none of the offenders in this sample were employed in such fields (e.g., doctor, lawyer, professor,

scientist). It was noted that several offenders had been in the military either before or at the time they committed sexual homicide, the presence of prior military experience was coded.

With regard to the victims of sexual homicide, demographics such as race, sex, and age were coded. The victims' age was coded as one of three categories: Juvenile (persons under age 18), Adult (persons aged 18 to 64), and Older Adults (persons over the standard retirement age of 65 years). In the S sample, these variables were coded for the series of victims as a whole, so that each offender would only have one value for this variable, even though he had murdered multiple victims. That is, if an offender killed only female victims, this case would be coded "female," reflecting that all victims matched on this attribute. This approach made it necessary to include an additional option for coding victim age, race, and sex in cases where the victims in a series differed from one another on these variables. A "Mixed" category was added for cases in which an offender targeted victims of more than one sex, racial group, or age category. During review, it was discovered that several cases involved victims who had engaged in prostitution, so a variable for this attribute was added, coded "present" if all victims of a particular offender were prostitutes, and "absent," if any sexual homicide victim had not been noted to be a prostitute. This coding scheme made it possible to distinguish offenders who exclusively targeted prostitutes from those who did not.

Coding Procedures for Criminal and Antisocial History Variables

All eligible cases were reviewed and coded by the primary researcher and one assistant who had received extensive training, and both of whom were supervised by a senior researcher and clinician. Researchers documented each crime that an offender had committed, coding the offense types using a numerical system (e.g., homicide=1, rape=2, and so on). In all, 31 different types of offenses were coded for, as well as an "Other" category for offenses that were not

accounted for by the other numerical codes. Offenses coded as Other included solicitation of a prostitute, failure to pay fines, and offenses of unknown type (i.e., records indicated an arrest was made, but did not specify the charges). Offense codes were assigned based on the actual nature of the misdeeds committed, rather than relying on the actual legal charges that resulted, or would have resulted, from an offense. This was done in order to ensure that the perpetrator's history would be accurately reflected in the coding scheme, as research suggests that legal charges are not always indicative of the reality of an offender's crimes (e.g., Prentky et al., 1997). Thus an offense that was well-documented to have been a kidnapping and attempted rape was coded as such in this dataset, even if the offense ultimately was reduced to a simple assault through the legal system. Narrative information about a crime in question is generally present in initial police reports, so law enforcement agencies investigating a particular suspect's background usually have access to the description of the offense as originally charged and the narrative details about what specific criminal behaviors took place during the commission of the act.

This coding process was followed for all crimes officially documented in the offender's arrest and conviction history, as well as antisocial acts for which information was derived from reliable sources of "unofficial" offense information. These sources included friends, family members, intimate partners, and employers of the offenders, when their assertions could be reasonably corroborated by other sources in the case file. The offenders' self-reported antisocial acts were also included when they could be adequately substantiated by additional sources. The rationale for including both officially documented and other antisocial acts stems from empirical work indicating that using only the perpetrator's arrest and conviction history yields a woefully incomplete account of his past misconduct (e.g., Prentky et al., 1997) and can be considered a minimum estimate of the amount of illegal activity he has engaged in. In order to distinguish the

acts that resulted in official sanctions from those that did not lead to the offender's arrest or conviction, the term "Crimes" will be used for offenses appearing on an offender's official criminal history, and "Antisocial Acts" will be used to denote offenses that, while illegal, were not documented in arrest and conviction records. The number of officially documented Crimes in an offender's history was recorded. The number of Antisocial Acts each perpetrator had committed was then added to his Crime total. The combined number was compared to the total number of Crimes only to examine the degree to which reliance on arrest and conviction records alone underestimated the extent of offenders' illegal activity.

Total numbers were also calculated for each type of offense committed by each offender, such that the number of kidnappings, burglaries, arsons, and so on that each perpetrator was responsible for was recorded. These offense totals were calculated for Crimes only, and with Antisocial Acts added. By definition, it was anticipated that the S offenders would be responsible for a larger number of sexual homicides than the NS offenders. It was noted that some types of offenses were more likely to occur in the context of a sexual murder, such as rape and kidnapping. Because of the discrepancy in the number of sexual murders between the groups, it was expected that there would be a similar discrepancy regarding the offenses that tended to co-occur with sexual murders. Therefore, S offenders would appear to have committed a larger number of certain offense types than NS offenders, but only because they had also committed more sexual homicides, yielding misleading results. To prevent results from being skewed by the higher number of offenses associated with sexual homicide found in the S cases, all specific offense type totals were re-calculated, excluding instances of the offense that were committed during the commission of a sexual homicide. Comparisons of offenders' backgrounds using these modified offense totals would mean that any disparities found between

the S and NS groups would reflect actual differences in the groups' offending behavior over time, *independent* of the number of sexual homicides the offenders in each group had committed.

The total number of criminal events each offender had committed was also calculated. A criminal event (or criminal incident) was defined as a single incident, even if it included several different types of offenses or antisocial acts. For instance, a single incident in which a man raped and murdered a victim before stealing her jewelry and her car would be recorded as one criminal event. However, each individual crime would be added to the perpetrator's tally of offenses, so his total number of murders, rapes, thefts, and vehicle thefts would each increase by one. The rationale for coding offenses and events in this manner was that coding only the number of events would omit valuable information about the specific nature of the illegal behaviors committed during each event. Conversely, coding only the number of offenses of each type, without regard for how many discrete criminal events occurred, would produce results that would appear to exaggerate how many times an offender actually engaged in criminal activity. For example, an offender with no arrest history who committed a single sexual homicide like the example described above would appear to have committed four crimes, when he had actually perpetrated only one act that included four offense types.

In addition, the number of criminal events for which there was sufficient evidence of sexual motivation was coded for each offender. A sexually-motivated event was one in which at least one of the offense types occurring within it was committed for the sexual gratification of the offender. Events involving overt sexual activity, such as rape or sexual assault, were considered to have a sexual basis. Further, offenses that are not generally motivated by sexual desire were coded as sexually-motivated if information in the case file indicated that this classification was warranted. For example, a burglary in which the offender took nothing of

value, but instead stole women's underwear, would be coded as sexual. A kidnapping incident in which the perpetrator abducted the victim for the purpose of engaging in sexually gratifying activity would also be coded as sexually-motivated. This approach was used in an effort to provide an accurate reflection of the number of sexual crimes these men had engaged in, since it has often been noted that official arrest histories commonly underestimate the degree to which a perpetrator's crimes are driven by sexual needs (e.g., Schlesinger, 2004a).

Coding Procedures for Temporal Variables

Several variables relating to the timing of an offender's illegal activity were coded from available file information. Each offender's age was coded in four ways. In order to establish when the offenders began their criminal careers, the age of each at the time of his first Crime was recorded. An offender's age at the time of his first Antisocial Act was also recorded to allow for comparisons between the two figures. Similarly, an offender's age at the time of his first homicide was calculated considering Crimes only, and then including Antisocial Acts, in order to examine whether any differences existed between these figures.

When known, the date of each offender's final arrest for any type of crime was recorded. This was used in the creation of two other variables: Criminal Career and Time to Arrest. The Career variable was defined as the number of years elapsing between the date of the offender's first Antisocial Act and the date of his final arrest. As such, the Criminal Career variable provides information relating to how many years the offenders in this sample were committing illegal activities before being arrested for the last time. The Time to Arrest variable was calculated as the number of days elapsing between the date of an offender's last known homicide (including those not officially documented in his criminal record) and the date of his final arrest for any type of crime. This variable was designed to examine how long the sexual homicide

perpetrators studied here were able to elude apprehension following the final murder they committed. It was hypothesized that the offenders in the S group would be more skilled at avoiding capture for their crimes than offenders in the NS group, thus allowing serial sexual murderers additional time and opportunity to continue offending.

In recording each perpetrator's criminal and antisocial history, the date on which each offense took place was documented. This was done for Crimes and Antisocial Acts. In some instances the exact date on which an offense was committed was unavailable. In those cases, arrest dates were used when file information indicated that the offender was arrested shortly after the crime itself. Offense dates were entered into a spreadsheet program used to calculate the number of days elapsing between the dates. Time periods during which an offender was incarcerated, hospitalized, or otherwise largely restricted from engaging in illegal activity were subtracted from the number of days between offenses. A conservative approach was used in deciding which cases to include in examining temporal data, resulting in fewer cases from both sample groups being included in some analyses. This was done to minimize the amount of error in the data due to inaccurate or inexact documentation of offense dates, and to eliminate the problems inherent in using estimated temporal data. Also, for all temporal pattern analyses, Crimes and Antisocial Acts were included, since any patterns in offending behavior would be evidenced in the perpetrators' actual commission of such acts, regardless of whether the acts resulted in arrest or official sanctions.

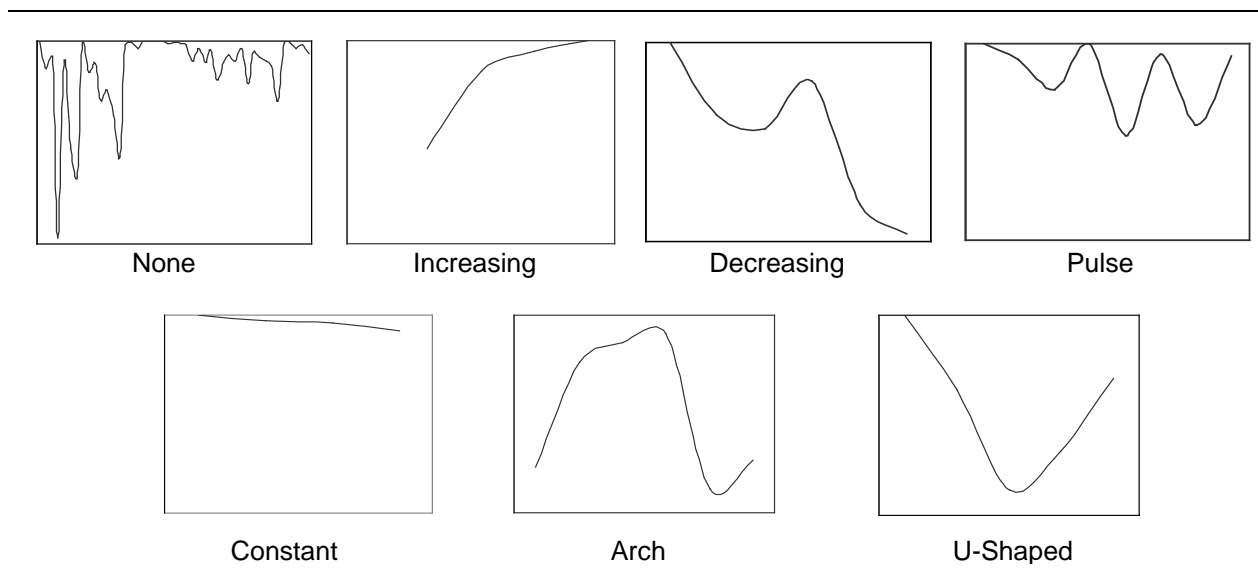
Temporal features of an offender's criminal and antisocial behavior were coded for various types of offenses. First, the number of days between offenses was calculated for all Crimes and Antisocial Acts of any type, so that any potential patterns occurring in general offending behavior could be examined. The same process was done for the number of days

elapsing between violent offenses only, such as homicide, rape, assault, weapons offenses, and robbery. The number of days elapsing between sexual offenses was then coded. Some examples of sexual offenses include sexual assault, public indecency, child molestation, and attempted rape. In addition, all crimes that were indicated by case file information to have been sexually-motivated were included in these calculations, even if the acts would not have appeared sexual to a lay observer. This was done because any temporal patterns in sexual offending would be determined by the offender's own drives or desires, rather than by legal definitions or charges. Therefore, it was necessary to consider all Crimes and Antisocial Acts that were sexually gratifying in some way to the perpetrator.

Descriptive statistics were calculated based on these temporal data. The days elapsing between offenses were also plotted on line graphs so that any patterns present in these data could be visually examined. Each offense graph was classified into one of six categories which described the type of pattern it represented. If there was no discernable pattern, the graph was classified as "None." Figure 1 displays examples of each type of classification. The classification type refers to the frequency of offense commission, where "Increasing" indicates that the offender committed Crimes and Antisocial Acts at an increasing rate, while "Decreasing" indicates longer delays between offenses over time. A set of offenses was classified as "Constant" when the timing of the illegal activities in it was at a fairly steady rate. Patterns described as "Arch" or "U-shaped" were those in which offending frequency switched between increasing and decreasing, creating an arch when graphed. Finally, the "Pulse" designation was used for patterns in which multiple periods of increased offense frequency alternated with multiple periods of decreased frequency, indicated by the presence of several high and low points in the graph.

Figure 1

Temporal Pattern Classification Examples



Statistical Analyses

Exploratory analyses were performed for all coded variables, including offender and victim characteristics, criminal and antisocial background factors, and temporal features of the perpetrators' offending behavior. This process was done for the entire sample of offenders as a whole, as well as for the S and NS groups separately. Exploratory analyses indicated that these data were not normally distributed, necessitating the use of non-parametric statistics in further analyses. Descriptive statistics were calculated for the combined sample and for each individual offender group. Following this, comparative analyses were carried out to examine whether there were significant differences in offense variables that were related to coding and measurement procedures (e.g., total Crimes versus Crimes and Antisocial Acts).

The binomial sign test, a non-parametric alternative to the *t*-test, was used to compare these data. Comparative and bivariate analyses were also conducted to investigate the extent to which the NS and S groups differed from one another on the measured variables. Significance of

differences found between the two groups was examined using the Mann-Whitney U test. Finally, multivariate analyses were conducted in order to examine the effectiveness of several predictive models in which sets of measured variables were evaluated for their ability to distinguish offenders in the S group from those in the NS group. Backward stepwise binary logistic regression was used to test the predictive value of the proposed models.

Chapter Four

Results

Results for Full Sample, Combined Groups

Offender and case characteristics. This was a non-random sample consisting of 139 sexual murderers, all of whom were male. Most of the perpetrators only committed one incident involving sexually-motivated homicide ($n = 93$, 66.9%), while about a third committed at least two sexual homicides in separate incidents ($n = 46$, 33.1%). Ninety offenders (64.7%) were White, 38 (27.3%) were Black, six (4.3%) were of Hispanic ethnicity, and the remaining five (3.6%) were of other racial backgrounds, including two Asians, one Inuit/Alaskan Native, and two offenders of unknown ethnicity. Employment status was unknown for 18 offenders, or 12.9% of the sample. Regarding the 121 men for whom occupational information was available, over three-quarters ($n = 94$, 77.7%) were unemployed or held unskilled jobs. Only 27 offenders (22.3%) worked in skilled positions. Nearly a fifth of the entire sample ($n = 27$, 19.4%) was enlisted in the military either prior to or at the time that they committed sexual homicide.

The majority of the men in this sample had prior arrests or convictions ($n = 110$, 79.1%), while 29 (20.9%) did not. File information indicated a history of juvenile offenses for 41 individuals studied, or 29.5% of the sample as a whole. These figures are likely underestimates of the number of offenders who have committed other crimes prior to exhibiting homicidal violence, since many of the case files were silent as to the matter of previous crimes and thus could not be coded “yes” on these variables.

Frequency of criminal and antisocial acts. Calculations were performed to determine the number of separate criminal incidents of any type for which the men in this sample were responsible. A single criminal incident or criminal event might include several types of offenses,

depending on the perpetrator's behaviors at the crime scene. When all Crimes were analyzed, these 139 men engaged in a total of 1,255 criminal events. The range was quite broad, from only a single criminal incident to a maximum of 57. The average number of criminal events per offender was 9.03, with a standard deviation of 8.68. When Antisocial Acts were also included in this analysis, the sample was responsible for 1,580 incidents, ranging from one to 59 each, with an average of 11.37 ($SD = 9.27$). Analysis with the binomial sign test indicated that the total number of criminal incidents increased after the addition of Antisocial Acts at a rate greater than that expected to occur by chance, $p = .001$.

To examine how many illegal acts were committed by these offenders other than those occurring in the context of a sexual homicide, the same analyses were conducted with all sexual murders and offenses co-occurring with sexual murders removed from the incident total for each offender. When considering Crimes only, the sample was involved in 997 criminal events, ranging from zero (in the case of the men who did not commit any crimes other than sexual homicides) to 53 incidents, with an average of 7.17 incidents per offender ($SD = 8.28$). When both Crimes and Antisocial Acts were considered, but without the inclusion of sexual murders, the men were responsible for a total of 1,291 criminal events, ranging from zero to 55 incidents per offender ($M = 9.29$; $SD = 8.49$).

Results indicated that the totals for Crimes and Antisocial Acts differed significantly when offenses occurring during sexual murders were subtracted from analysis. For Crimes only, the total number of offenses was significantly lower after sexual homicides were subtracted than would be expected by chance, $p = .011$. When the number of Antisocial Acts was calculated with and without the inclusion of the sexual homicides, results from the binomial sign test were significant, $p = .001$, indicating that the number of criminal events was significantly lower than

what would be expected if the sexual homicides did not have an influence on the totals. In addition, the significant difference between the number of Crimes and the number of Antisocial Acts remained, even after excluding sexual murders from both figures. Analysis with the binomial sign test indicated that there was a larger number of offenses when Antisocial Acts were included than would be expected by chance, $p > .001$.

Also of interest was the prevalence of sexually motivated offenses of any type in this sample. Analyses including Crimes and Antisocial Acts showed that the 139 men studied were responsible for a total of 623 such offenses, a figure that included sexual homicides. The number of sexually motivated offenses ranged from one to 33 per perpetrator, with an average of 4.48 ($SD = 4.65$). When sexual homicides and co-occurring offenses were excluded from this analysis, the men in the combined sample committed a total of 346 sexually motivated offenses, such as rapes, burglaries, assaults, and kidnappings. The number of these for each perpetrator ranged from zero (in cases where the murder was the only sexually motivated crime) to 23, with an average of 2.49 offenses ($SD = 3.56$). Results of the binomial sign test indicated that the difference in the number of sexual offenses when homicides were removed from analysis was significantly lower than that expected by chance, $p > .001$. As reported above, the total number of offenses of any type committed by the sample, including Crimes and Antisocial Acts, was 1,291, excluding sexual murders. Considering the 346 sexually motivated criminal incidents, over a quarter (26.8%) of all offenses committed by these men were sexually motivated, a finding that does not include the sexual homicides themselves. Examining just the sexual homicides reveals that a total of 275 such crimes were perpetrated by the offenders in this sample, though individual figures ranged from one to 10 ($M = 1.98$, $SD = 1.86$). For this

calculation, only those sexual homicides officially linked to the offender were included. This was done to provide the most conservative estimate of the number of victims.

Characteristics of sexual homicide victims. With regard to the characteristics of sexual homicide victims, it was found that 123 men, or 88.5% of the total sample ($N = 139$), killed female victims exclusively, while 12 (8.6%) killed males exclusively. The remaining four offenders (2.9%) killed both male and female victims. Most of the offenders murdered adult victims ($n = 93$, 66.9%), though 25 men (18.0%) exclusively killed juveniles. Ten offenders (7.2%) murdered older adults only. All of these offenders killed females exclusively, so this sample did not contain any offender who exclusively preyed on males over the age of 65. Finally, eleven perpetrators (7.9%) murdered victims in multiple age categories. Of the 139 men in this study, 19 (13.7%) exclusively chose prostitutes as their sexual murder victims.

Racial characteristics of the sexual homicide victims were also analyzed. Over three-quarters ($n = 106$, 76.3%) of the offenders murdered White victims only. Twenty perpetrators (14.4%) selected only Black victims. Only three men (2.2%) chose Hispanic victims exclusively. For the remaining five offenders (3.9%), the victims' race was classified as "Other," which included Asian and Inuit/Alaskan Native victims, and those for whom race was unknown. Table 1 contains the crosstabulations of race for offenders and sexual murder victims. Overall, a significant association was found for race of offender and victim, $\chi^2(9) = 77.32, p < .001$. Over two-thirds of the offenders in this sample ($n = 95$, 68.4%) murdered victims of their own race, while just over a quarter ($n = 37$, 26.6%) murdered only victims belonging to a different racial group than themselves. Only five men (3.6%) murdered victims who differed from each other with regard to race.

Table 1

Racial Characteristics of Sexual Homicide Offenders and Victims

Offender Race	Victim Race							
	White		Black		Hispanic		Other	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
White	78	91.8	4	4.7	2	2.4	1	1.2
Black	20	52.6	16	42.1	1	2.6	1	2.6
Hispanic	6	100	0	0.0	0	0.0	0	0.0
Other	2	40.0	0	0.0	0	0.0	3	60.0

*N=134; 5 (3.6%) offenders had victims of more than one race

Prevalence of offenses by type. The following figures were calculated in order to provide an overview of the prevalence of various specific offenses in the entire sample. Only officially recorded Crimes were included in calculating these frequencies, and Antisocial Acts were excluded, such that the numbers reported can be considered minimum estimates of the prevalence of these offenses. Additionally, because these figures do not include incidents involving sexual murder, they represent the number of crimes committed by this sample *independent* of sexual homicide. Overall, this sample committed a total of 41 attempted or completed homicides that were not sexually-motivated or associated with the sexual homicide series. They also committed 53 kidnappings, nine arsons, and 152 aggravated or simple assaults. They were responsible for 175 rapes, sexual assaults, and attempted rapes, as well as 337 theft-related crimes, including theft/larceny, burglary, robbery, and motor vehicle theft. Appendix A displays the descriptive statistics for each individual offense type.

Temporal characteristics. The Criminal Career variable (the number of years elapsing between the perpetrator's earliest known offense and his last arrest), was calculated for the 136 men for whom this information was available. The average Criminal Career length was 10.25 years ($SD = 9.33$), but ranged from less than a year to 39 years. The youngest age at which an offender's Criminal Career began was eight years, while the oldest was 37 ($n = 129$; $M = 20.35$,

$SD = 6.07$). For 122 men, information was provided regarding age at the time of his first Antisocial Act. This ranged from seven to 35 years old, with an average age of 19.33 ($SD = 5.93$). The difference in age at first offense was significantly different when comparing Crimes only to all known Antisocial Acts using the binomial sign test, $p = .008$.

When examining the age at which these offenders first committed homicide, the average was 27.24 years ($n = 137$; $SD = 7.20$), and ranged from age 13 to 52. These figures changed when considering offenders' ages at the time of their first officially documented homicide. The average age remained 27.74 years ($n = 137$; $SD = 7.73$), but the lower limit of the age range increased to 17 years. Analysis with the binomial sign test indicated the difference in these age calculations for officially documented versus any known homicide was not significant, $p = .494$.

The Time to Arrest variable was analyzed for 136 offenders for whom this information was provided. Results indicated that an average of 459.73 days, or about one year and three months, elapsed between the date of an offender's final homicide and his arrest. However, the range for this variable was extremely broad. Some offenders were arrested on the day of their final homicide, yielding a Time to Arrest value of zero. At the other extreme, one offender was not arrested until more than 28 years (10,330 days) after his last murder. The large standard deviation ($SD = 1,345.21$) indicates that there was wide variation in how long the offenders remained at large.

The chronological sequence of offenders' illegal activities was examined in multiple ways. First, the dates of all Crimes and Antisocial Acts committed by each offender were analyzed. The same procedure was followed for three broad types of offenses: violent crimes only, sexual crimes only, and sexual homicides only. Sufficient data for each type of analysis were not available for each offender in the sample for a number of reasons. For example, if an

offender's entire history contained only one instance of violence, he would be excluded from that analysis, as no temporal pattern could be plotted from a single instance. Cases were also omitted from analyses if the file was incomplete or unclear with regard to dates of the offense types being studied. Since large variation was found, the following results are reported to provide an overview of the temporal characteristics of offenses studied, but should be interpreted cautiously.

The temporal analysis of overall offense histories was performed using data from 86 men in the sample. An average number of days elapsing between offenses was calculated for each offender. These averages ranged from a minimum of one day and a maximum of 6,205 days, or nearly 17 years. With respect to the dates of violent crimes and antisocial acts, information was available for 80 offenders. The range of averages remained the same, with an average of only one day between violent acts at the lower end, and almost 17 years between these crimes at the upper end. For sexual offenses, the average number of days between incidents ranged from zero to 6,205. There were 64 offenders included in this analysis. The finding of an average of zero days between sexual offenses indicates that some perpetrators committed more than one sexually-motivated act on a single date. Finally, data for 46 offenders were used in studying the dates of sexual homicides. By definition, this analysis only included S cases. The averages for each offender studied ranged from a low of one day between offenses to a high of nearly 14 years (5,062 days).

Dates of offenses were then plotted to search for the presence of patterns. To be included in each type of pattern analysis, offenders' histories were required to include at least three instances of the type of offense under consideration. For each set of offense dates, the most commonly occurring patterns are reported. The dates of all Crimes and Antisocial Acts were examined for 82 men in this sample. Nearly half ($n = 39$, 47.6%) produced no discernable

pattern. Over a quarter ($n = 22, 26.8\%$) of the series analyzed were classified as Pulse patterns, while another 13 (15.9%) were Increasing. Dates of violent acts were plotted for 67 offenders. Of these, 36 (53.7%) did not produce an interpretable pattern. Fourteen (20.9%) offenders' patterns were categorized as Increasing, while Decreasing and Pulse patterns were found in six cases (9.0%) each. With regard to the dates of sexual offenses, there was no pattern found for 21 (41.2%) series out of 51 cases analyzed. Ten (19.6%) patterns were Increasing, eight (15.7%) were Pulse, and seven (13.7%) were Decreasing. Only 28 offenders contributed data suitable for analysis of patterns in the commission of sexual homicide. These cases were all S cases, as these were the cases in which three or more sexual murders were carried out on different dates. A quarter ($n = 7$) of the offenders included in this analysis did not produce any classifiable pattern. Almost a third ($n = 9, 32.1\%$) of the series were classified as Increasing, and seven (25.0%) were Decreasing. The Constant pattern occurred in three (10.7%) cases. Table 2 shows full results of all pattern analyses.

Table 2

Frequency of Temporal Pattern Types

Crime Type	None		Increasing		Decreasing		Pulse		Constant		Arch		U-Shaped	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
All ^a	39	47.6	13	15.9	5	6.1	22	26.8	--	--	1	1.2	2	2.4
Violent ^b	36	53.7	14	20.9	6	9.0	6	9.0	2	3.0	1	1.5	2	3.0
Sex ^c	21	41.2	10	19.6	7	13.7	8	15.7	2	3.9	2	3.9	1	2.0
Sexual Homicide ^d	7	25.0	9	32.1	7	25.0	1	3.6	3	10.7	1	3.6	--	--

^a $N = 82$. ^b $N = 67$. ^c $N = 51$. ^d $N = 28$.

Results for Split Samples, S versus NS Group

Offender and victim characteristics. The NS group consisted of 93 cases involving 99 victims of sexual homicide, because there were six cases in which an offender committed two sexual murders during one single incident. The S group contained 46 cases that resulted in 176 sexual murders. The complete racial characteristics of each group are presented in Table 3. In the S group, the majority of offenders were White ($n = 32, 69.6\%$), and 11 (23.9%) were Black. Similarly, most offenders in the NS sample were White ($n = 58, 62.4\%$), while 27 (29.0%) were Black. While the S group contained no Hispanic offenders, the NS group contained six (6.5%). Viewed in another way, when considering all of the White offenders across both samples ($n = 90$), 64.4% ($n = 58$) of them were in the NS group, while only 35.6% ($n = 32$) were in the S group. This difference was similar for the 38 Black offenders, as 71.1% ($n = 27$) were in the NS sample, and 28.9% ($n = 11$) committed serial sexual homicide. Interestingly, all six (100%) of the Hispanic offenders in the full sample were NS offenders. That is, there were no cases in which a Hispanic perpetrator committed multiple sexual homicides in separate criminal events. However, statistical analysis showed no significant differences between the groups in terms of race, $\chi^2(3) = 5.144, p = .162$.

Table 3

Racial Characteristics of Sexual Homicide Offenders by Group

Offender Group	Offender Race							
	White		Black		Hispanic		Other	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Non-Serial	58	62.4	27	29.0	6	6.5	2	2.2
Serial	32	69.6	11	23.9	0	0	3	6.5

$N=139$; Non-Serial $n = 93$; Serial $n = 46$

No significant differences were found between the two groups of offenders with regard to employment status, $\chi^2(2) = 2.891, p = .236$. In the NS group, there were 78 cases in which the

offender's employment status was known. Over half of these offenders ($n = 40$, 51.3%) worked in unskilled positions, while 24 (30.8%) were unemployed. Fourteen men (17.9%) held skilled jobs. For the S group, employment was known for 43 offenders. Similar to the NS group, many were unskilled workers ($n = 21$, 48.8%), but a larger proportion had skilled jobs ($n = 13$, 30.2%). Nine (20.9%) S offenders were unemployed. A subset of the offenders in both groups had some military experience. Eleven (23.9%) of the 46 S perpetrators were in some branch of the military at or before they committed homicide, while 16 (17.2%) of the 93 NS offenders had such a history. Analysis revealed that the difference between the two offender groups was not statistically significant, $\chi^2(1) = 0.885$, $p = .236$.

Data on the characteristics of the sexual homicide victims were analyzed across the two offender groups. In terms of victim sex, the vast majority of the NS offenders killed women ($n = 87$, 93.5%), while the remaining six (6.5%) perpetrators killed men. Most of the S group also killed women exclusively ($n = 36$, 85.7%). Six (14.3%) men killed only male victims, and four (8.7%) offenders had sexual homicide victims of both sexes. The NS and S groups did not differ significantly in terms of the sex of the victims, $\chi^2(1) = 2.193$, $p = .126$.

The findings for victim age were similar between the groups. Over half (58.7%, $n = 27$) of the perpetrators in the S sample and 71.0% ($n = 66$) of those in the NS group selected adult victims only. Seven (15.2%) S offenders and 18 (19.4%) NS offenders preyed exclusively on juveniles. Few men in either group perpetrated sexual homicide against older adults exclusively, with only two (4.3%) of the S group and eight (8.6%) of the NS group doing so. Additionally, one (1.1%) of the NS offenders and ten (21.7%) of the men in the S group committed sexual homicides against victims in different age categories. Analysis of differences in victim age across the two offending groups did not produce significant findings, $\chi^2(2) = 0.365$, $p = .833$.

Examining the breakdown of victims' age categories in another way showed that 72.0% ($n = 18$) of the 25 offenders who killed only juveniles were in the NS group, and 28.0% ($n = 7$) belonged to the S group. These figures were nearly identical for the 93 men who had only adult victims, in that 71.0% ($n = 66$) were non-serial sexual homicide offenders, and 29.0% ($n = 27$) had committed multiple sexual homicides. However, for the ten offenders whose victims were classified as Older Adults, 80% ($n = 8$) were in the NS group, but only 20% ($n = 2$) were in the S group.

When the race of the offender was considered in conjunction with the race of his victim(s), significant differences were found between the groups, $\chi^2(9) = 32.236, p < .001$. Overall, 34 (73.9%) of the S offenders targeted victims of their own race, while 63 (67.7%) of the offenders in the NS group chose only victims of their own race. However, in both groups, the majority of offenders targeted White victims, regardless of the offender's own race, with 76 (81.7%) of the NS cases and 30 (65.2%) of the S cases having only White victims. Table 4 shows the racial characteristics of offenders and victims for both offender groups.

Table 4

Racial Characteristics of Sexual Homicide Offenders and Victims by Offender Group

Offender Group	Offender Race	Victim Race									
		White		Black		Hispanic		Other		Mixed	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Non-Serial	White	53	57.0	2	2.2	2	2.2	1	1.1		
	Black	16	17.2	9	9.7	1	1.1	1	1.1		
	Hispanic	6	6.5	0	0	0	0	0	0		
	Other	1	1.1	0	0	0	0	1	1.1		
Serial	White	25	54.3	2	4.3	0	0	0	0	5	10.9
	Black	4	8.7	7	15.2	0	0	0	0	0	0
	Hispanic	0	0	0	0	0	0	0	0	0	0
	Other	1	2.2	0	0	0	0	2	4.3	0	0

When considering all 139 sexual murderers in this sample, only 19 (13.7%) exclusively killed victims who worked in prostitution. The proportion of NS offenders ($n = 4$, 4.3%) whose victims fell into this category was much smaller than the proportion of S offenders who murdered sex workers ($n = 15$, 32.6%). These results also show that 78.9% of the homicide perpetrators who preyed solely on prostitutes were in the S group, and only 21.1% were in the NS group. There was a significant difference between the groups, $\chi^2(1) = 20.899, p < .001$.

Criminal and antisocial background characteristics. Most of the offenders in this sample had a history of prior offenses that were officially documented in arrest or conviction records ($n = 110$). In the S homicide group, 37 (80.4%) men had criminal histories, and nine (19.6%) did not. The figures for the NS offenders are similar, as 73 (78.5%) had prior offenses and 20 (21.5%) did not. These results indicate that 66.4% ($n = 73$) of the offenders with a prior record were in the NS group, and just over a third (33.6%, $n = 37$) were in the S group. The difference between the groups in terms of prior criminal records was not significant, $\chi^2(1) = 0.070, p < .489$.

A review of offenders' histories found that 15 men in the S group (32.6%) and 26 in the NS group (28.0%) had committed Crimes during childhood or adolescence that were officially documented. Of the serial offenders, 31 (67.4%) had no history of juvenile Crimes. Slightly more ($n = 67$, 72.0%) of the non-serial perpetrators had no juvenile criminal record. There was no significant difference between the groups on this variable, $\chi^2(1) = 0.320, p < .354$, but a larger proportion (63.4%) of those who committed Crimes as juveniles were in the NS group than in the S group (36.6%).

When considering officially-documented Crimes only, the NS group of offenders was responsible for a total of 684 criminal incidents, with a mean of 7.35 per offender

(range: 1-30, $SD = 7.153$). The S group committed 571 criminal incidents, with an average of 12.41 events per offender (range: 3-57, $SD = 10.447$). The difference between the total number of incidents for each group was significant, Mann-Whitney $U = 1267.5, p < .001$. After including Antisocial Acts as well as Crimes, the number of incidents involving illegal activity committed by these men increased dramatically. The NS group had committed a total of 859 separate criminal incidents, averaging 9.34 per offender (range: 1-32, $SD = 7.472$), while the S group was responsible for 711 incidents, with a mean of 15.46 per offender (range: 4-59, $SD = 11.115$). The difference in the number of incidents committed by each offender group remained significant, $U = 1172.5, p < .001$.

When all sexually motivated homicides were excluded from the official Crime totals, the NS group was responsible for 591 criminal incidents ($M = 6.35$, range: 0-29, $SD = 7.153$), and the S group had committed 406 criminal incidents ($M = 8.83$, range: 0-53, $SD = 10.078$). The difference between the totals was not statistically significant when the offender groups were compared, $U = 1802.5, p = .131$. However, when Antisocial Acts other than sexual homicide were included, the difference between the groups was significant, $U = 1655.5, p = .030$. After Antisocial Acts were considered in the total number of criminal incidents, the NS group was responsible for 762 offenses, ($M = 8.19$, range: 0-39, $SD = 7.222$), while the S group had committed 529 criminal incidents ($M = 11.50$, range: 0-55, $SD = 10.345$).

With regard to all sexually motivated offenses, excluding homicide, the NS offenders were responsible for 145 such acts, averaging 1.56 per offender (range: 0-10, $SD = 2.209$). The S group committed 201 sexually motivated incidents, not including homicides, with a mean of 4.37 for each perpetrator (range: 0-23, $SD = 4.828$). The S group committed a significantly larger number of sexually motivated incidents, $U = 1119.5, p < .001$, even when homicides were

not included in the comparative analysis. These figures were based on the inclusion of Crimes and Antisocial Acts in the analyses.

The two offender groups were compared with regard to the number of each of the individual offense types committed. Each offense type was measured in four ways: officially documented Crimes only; all known instances, including Crimes and Antisocial Acts; and each of these categories without the inclusion of sexually motivated murder. For practical purposes, only the significant results from comparisons of Crimes only versus Crimes and Antisocial Acts, excluding sexually motivated murders, are discussed here. The officially documented Crimes, excluding sexual homicides, are those which would appear on a suspect's arrest history and thus be available to law enforcement during the initial stages of an investigation. The figures for all known Antisocial Acts, which include Crimes as well as illegal acts not resulting in arrest or charges, but without including sexual homicides, would be those that could be uncovered during the course of an investigation into a suspect's history. Therefore, any statistically significant differences between the NS and S groups on these measurements of offense types could be considered "red flags" for investigators when assessing those suspected of sexual murder.

Only one offense type, domestic violence, was significantly more prevalent in the NS group of offenders than in the S group, excluding illegal acts committed in the context of sexual homicide, $U = 1755.5$, $p = .033$. However, this difference was significant only when Antisocial Acts of domestic violence were considered along with officially documented Crimes.

Several offenses were found to be more frequent among the S offenders than the NS offenders. There was a significantly higher prevalence of non-sexual and non-serial homicides among the S offenders, $U = 1586.5$, $p < .001$, but only when Antisocial Acts were considered along with Crimes. The serial offender group also committed a significantly higher number of

attempted homicides than the NS group. The frequency of this type of offense did not change when Antisocial Acts were added, thus the figures for Crimes and all known Antisocial Acts involving attempted homicide are the same. The difference between the groups was significant, $U = 1569.5, p < .001$. With regard to aggravated assaults, the S group also committed a significantly higher number of these than the NS group, both for Crimes, $U = 1590.0, p = .003$, and when all Antisocial Acts involving the commission of aggravated assault were considered, $U = 1545.5, p = .002$. Instances of kidnapping were perpetrated significantly more often by offenders in the S group than in the NS group, $U = 1600.5, p < .001$. This difference remained significant after Antisocial Acts were included, $U = 1595.0, p < .001$. Significant differences were also found in the rate of incidents of animal cruelty, with S offenders committing these crimes more frequently than NS offenders, $U = 2046.0, p = .044$. The difference remained significant after the inclusion of Antisocial Acts, $U = 1844.5, p = .011$.

A number of sexual offense types occurred significantly more often among the serial offender group. For instance, the S group committed significantly more rapes than the NS group, $U = 1582.0, p = .002$. This difference remained significant after adding all Antisocial Acts involving rape to the number of rape Crimes, $U = 1686.5, p = .014$. The S group was also involved in more attempted rapes than the NS group, with the p -value approaching significance, $U = 1915.0, p = .055$. After Antisocial Acts were included in the analyses, the difference between the groups was not significant, $U = 1958.5, p = .144$. Sexual assaults other than rape, such as sodomy, were also more common among the S group than the NS group when considering only Crimes, $U = 1712.5, p = .010$, and when all known Antisocial Acts were included, $U = 1638.5, p = .004$. An offense type labeled "Other Sexual Offenses" was used to code for sex-related illegal acts that were not better described by the existing coding scheme,

such as groping a female against her will. The S group also committed significantly more offenses that fell within this category than did the NS offenders, $U = 1783.5, p = .006$, when only Crimes were included in the analysis. The difference when Antisocial Acts were included was non significant, $U = 1872.5, p = .075$. Incidents of voyeurism were perpetrated significantly more often by the S offenders than the NS offenders, $U = 1978.0, p = .025$. However, the difference was not significant after inclusion of all known Antisocial Acts, $U = 2022.0, p = .344$.

Table 5 shows statistics for the offense types that significantly differed between the offender groups, while Appendix B displays the results of significance testing between the groups for all offense types measured all four ways.

Table 5
Offense Types that Differed Significantly Between Groups

<u>Offense Type</u>	<u>Mean Rank by Group</u>			
	<u>NS</u>	<u>S</u>	<u>U</u>	<u>p</u>
Domestic Violence, AA	74.12	61.66	1755.5	.033
Homicide, AA	64.06	82.01	1586.5	>.001
Attempted Homicide, C	63.88	82.38	1569.5	>.001
Aggravated Assault, C	64.10	81.93	1590.0	.003
Aggravated Assault, AA	63.62	82.90	1545.5	.002
Kidnapping, C	64.21	81.71	1600.5	>.001
Kidnapping, AA	64.15	81.83	1595.0	>.001
Animal Cruelty, C	69.00	72.02	2046.0	.044
Animal Cruelty, AA	67.26	75.53	1884.5	.011
Rape, C	64.01	82.11	1582.0	.002
Rape, AA	65.13	79.84	1686.5	.014
Attempted Rape, C	67.59	74.87	1915.0	.055
Sexual Assault, C	65.41	79.27	1712.5	.010
Sexual Assault, AA	64.62	80.88	1638.5	.004
Other Sex Offenses, C	66.18	77.73	1783.5	.006
Voyeurism, C	68.27	73.50	1978.0	.025

C = Crimes only; AA = Antisocial Acts and Crimes

Temporal characteristics. The Criminal Career variable, or the number of years elapsing between a perpetrator's earliest known offense and his last arrest, was analyzed between the offender groups. For the 91 offenders in the NS group for whom this information was

available, the average Career length was 8.24 years ($SD = 8.140$), but ranged from less than a year to 35 years. In the S group, data from 45 offenders were analyzed. The average Criminal Career length was 14.31 years ($SD = 10.322$), and ranged from less than a year to 39 years. The difference between the groups with regard to Criminal Career length was significant, Mann-Whitney $U = 1289.5$, $p > .001$, with offenders in the S group having longer Criminal Careers, on average, than offenders in the NS group. For the NS group, the average age at which an offender committed his first known Antisocial Act was 19.13 ($SD = 5.45$; $n = 79$), and 19.70 ($SD = 6.767$; $n = 43$) in the S group. The youngest age at which an offender's Criminal Career began was seven for the NS group, and eight in the S group. For both groups, the oldest age that an offender began committing illegal acts was 35.

When examining the age at which these offenders first committed homicide, the average was 26.73 years ($SD = 6.965$; $n = 92$) for the NS group, and 28.29 years ($SD = 7.641$; $n = 45$) for the S group. This difference was not significant, $U = 1779.5$, $p = .182$. When considering offenders' ages at the time they first committed a homicide that was documented in official criminal records, the average for the NS group was 26.92 years ($n = 92$; $SD = 7.252$), and for the S group, 29.40 years ($n = 45$; $SD = 8.468$). The difference between the two groups on this variable was not significant, $U = 1703.5$, $p = .093$.

The Time to Arrest variable was analyzed for 136 offenders, with 91 in the NS group and 45 in the S group. Results indicated that in the NS group, an average of 336.88 days ($SD = 989.131$), or just over eleven months, elapsed between the date of an offender's final homicide and his arrest. In the S group, this variable averaged 708.16 days ($SD = 1859.184$), or about one year and eleven months. This difference was significant between the groups,

$U = 1543.5, p = .02$, with offenders in the serial group typically eluding arrest for longer periods following the commission of their final homicide than non-serial offenders.

The presence of temporal patterns in the sequence of a perpetrator's offenses of all types, violent offenses, and sexual offenses was investigated in both offender groups. To be included in each pattern analysis, offenders' histories were required to include at least three instances of the type of offense under consideration. The two offender groups were then compared with regard to the frequency of temporal patterns in their Criminal and Antisocial histories. The frequency of pattern types between the groups is displayed in Table 6.

Table 6

Frequency of Temporal Patterns in Offending by Group

Pattern Type	Crime Type											
	All Offenses				Violent Offenses				Sex Offenses			
	NS^a		S^b		NS^c		S^d		NS^e		S^f	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
No Pattern	22	50.0	17	44.7	17	53.1	19	54.3	7	41.2	14	41.2
Increasing	6	13.6	7	18.4	8	25.0	6	17.1	4	23.5	6	17.6
Decreasing	6	4.5	3	7.9	4	12.5	2	5.7	3	17.6	4	11.8
Pulse	12	27.3	10	26.3	1	3.1	5	14.3	1	5.9	7	20.6
Arch	1	2.3	0	0	0	0	1	2.9	0	0	2	5.9
U-Shaped	1	2.3	1	2.6	1	3.1	1	2.9	1	5.9	0	0
Constant	0	0	0	0	1	3.1	1	2.9	1	5.9	1	2.9

^a $n=48$; ^b $n=38$; ^c $n=32$; ^d $n=35$; ^e $n=17$; ^f $n=34$

The dates of all Crimes and Antisocial Acts were examined for 48 men in the NS group, and 38 offenders in the S group. Half of the NS offenders ($n = 22$) and nearly half the S offenders ($n = 17$; 44.7%) produced no discernable pattern. Over a quarter of the non-serial offenders ($n = 12$, 27.3%) produced patterns that could be classified as Pulse. A similar proportion of the serial perpetrators also produced Pulse patterns, $n = 10$, 26.3%. The NS and S

groups did not differ significantly with regard to the frequency of temporal patterns for Crimes and Antisocial Acts of all types, $\chi^2(5) = 1.670, p = .893$.

Dates of violent acts were plotted for 32 NS offenders and 35 S offenders. Over half the offenders in both groups produced no discernable temporal pattern, with 17 (53.1%) of the NS cases and 19 (54.3%) of the S cases so categorized. A quarter of the non-serial cases ($n = 8$) and 17.1% ($n = 6$) of the serial cases were classified as Increasing. The offender groups did not differ significantly regarding pattern types for violent offenses, $\chi^2(6) = 4.605, p = .595$.

With regard to the dates of sexual offenses, analyses were conducted on the series of 17 NS offenders and 34 offenders in the S group. There was no pattern found for seven NS cases and 14 S cases (41.2% for both groups). Seven series in the S group (20.6%) were classified as Pulse patterns, while only one (5.9%) of the NS cases fell into this category. The difference between the NS and S groups related to the presence of temporal patterns in sexual offending was not statistically significant, $\chi^2(6) = 5.298, p = .506$.

Multivariate Analyses

Binary logistic regression was used to predict an offender's membership in either the NS or S group, based on subsets of demographic, criminal background, and temporal variables. For each model tested, backward stepwise procedures were used. All of the variables to be included were entered simultaneously, and those that did not significantly contribute to the model's overall predictive utility were eliminated individually, beginning with the least significant predictor. After each removal, the fitness of the model was re-calculated until all variables remaining in the model significantly contributed to its predictive usefulness. Appendix C lists all variables that were initially tested for each model. Variables associated with temporal patterns were not included in any of the predictive models, due to the small number of offenders for

whom there were suitable temporal data. Similarly, some specific offense variables, such as those associated with stalking and abuse of a corpse, were excluded because they occurred in very few cases and were therefore not suitable for use in predictive modeling.

Additionally, the three demographic variables for victim age, race, and sex were re-coded for use in predictive equations. In the original coding scheme for these factors, a “mixed” option was included for cases that involved multiple victims who differed with regard to demographic characteristics. As a result, the “mixed” option was used primarily in Serial cases. Because of this coding system, including these variables in developing models to distinguish Serial from Non-Serial cases would have produced confounded results. For example, it would be expected that a case involving both male and female victims would have a higher likelihood of being Serial rather than Non-Serial, simply because cases in which there are multiple victims are more likely to be Serial in nature. However, information about additional victims would not be available to investigators upon the discovery of a single sexual homicide, so including such information in predictive models would be of little practical utility. Therefore, these factors were re-coded in a way that would apply equally to Serial and Non-Serial cases. Each new victim demographic variable was dichotomous, with one option reflecting the most commonly-occurring attribute, and the other option reflecting the presence of any other attribute. For example, the majority of sexual homicide victims are female, so the new variable for victim sex included one option for female victims, and another for any non-female victim in a case. Coding these factors in this way allowed them to be used as predictors in logistic regression equations, where inferences could be made about a case’s likelihood of being classified as Serial or Non-Serial. The new coding scheme also reflected information that would be known to law

enforcement at a single sexual homicide crime scene, so any predictive utility found for these variables could be applied in real-world settings.

The first model tested included only the re-coded victim demographic variables, such as age, race, sex, and whether the victims had engaged in prostitution. This model focused on victim variables because these are typically among the first pieces of information learned by law enforcement in the initial stages of a sexual homicide investigation. For Model 1, all tested variables remained in the model except Victim Race. Analysis of the model as a whole was significant, $\chi^2(3) = 32.040, p < .001$. The percentage of cases correctly classified using Model 1 was 77%, with 93.5% of the SV cases and 43.5% of the MV cases classified correctly. The Nagelkerke R^2 for this model was .286, and the Hosmer-Lemeshow statistic indicated a good fit for this model, $\chi^2(2) = 0.092, p < .955$. Table 7 displays statistics for the predictors that remained in this model.

Table 7
Logistic Regression Results for Model 1: Victim Variables

Predictor	β	SE	Wald	OR	95% CI	p
Victim Sex^a						
Any Non-Female Victim	1.541	.592	6.781	4.670	1.464 – 14.897	.009*
Victim Age^b						
Any Non-Adult Victim	.895	.431	4.312	2.447	1.051 – 5.693	.038*
Prostitution^c						
All Prostitute Victims	2.742	.634	18.702	15.513	4.478 – 53.744	>.001*

N=139; *Sig. at $p > .05$. Reference Categories: ^aFemale; ^bAdult; ^cAny Non-Prostitute Victim

These results show that variables related to victims' age, sex, and whether they had engaged in prostitution all significantly contributed to the prediction of group membership (Serial or Non-Serial). Examining the odds ratios of the variables tested indicates that cases that involved any male victim were 4.67 times more likely to be classified as Serial than cases in which all victims were female. Cases in which victims' age fell within the Juvenile or Older

Adult category were 2.447 times more likely to be classified as Serial than cases involving only Adult victims. Finally, the odds of a case being Serial rather than Non-Serial were 15.513 times higher in cases involving only victims who had engaged in prostitution.

The second model included the same victim variables as Model 1, as well as offender variables, such as race and employment status, that could be discovered by investigators as they begin to develop possible suspects in a sexual homicide case. For Model 2, the variables that remained are displayed in Table 8, with their associated regression coefficients and *p* values.

Table 8
Logistic Regression Results for Model 2: Victim and Offender Variables

Predictor	β	SE	Wald	OR	95% CI	<i>p</i>
Victim Sex^a						
Any Non-Female Victim	1.565	.668	5.489	4.781	1.291 – 17.702	.019
Victim Age^b						
Any Non-Adult Victim	.936	.464	4.068	2.551	1.027 – 6.337	.044
Prostitution^c						
All Prostitute Victims	3.613	.831	18.887	37.073	7.268 – 189.098	>.001
Offender Race^d			2.174			.537
Black	-.301	.513	.348	.739	.270 – 2.020	.555
Hispanic	-20.809	14880.142	.000	.000	0.000	.999
Asian/Other/Unknown	1.322	1.064	1.544	3.750	.466 – 30.151	.214
Offender Employment^e			6.459			.091
Unskilled	1.144	.612	3.491	3.138	.946 – 10.412	.062
Skilled	1.125	.740	2.311	3.079	.722 – 13.128	.128
Unknown	-.717	.972	.545	.488	.073 – 3.277	.460

N=139; Reference Categories: ^aFemale; ^bAdult; ^cAny Non-Prostitute Victim; ^dWhite; ^eUnemployed

The model as a whole was significant, $\chi^2(9) = 47.686, p < .001$. The goodness-of-fit statistic was significant, $\chi^2(8) = 4.924, p = .766$, and the Nagelkerke R^2 was .404. The percentage of cases correctly classified using this model was 79.1%, with 91.4% of the Serial and 56.5% of the Non-Serial cases. The three victim variables from Model 1 remained in this model as well. The Offender Race variable made a significant contribution to the predictive equation, with Black and Hispanic offenders being less likely than White offenders to be Serial

perpetrators. It should be noted that none of the Serial cases in this sample was committed by a Hispanic offender, so the results associated with this characteristic should be interpreted cautiously. Examination of the Offender Employment variable indicates that offenders who were employed, whether at the unskilled or skilled level, were somewhat more likely than those who were unemployed to be classified as Serial.

In the third model, specific offense variables were analyzed along with the victim and offender variable sets. This model was designed to include variables that would generally become known to homicide investigators after suspects' criminal records had been obtained. Therefore the offense variables tested in Model 3 were those that reflected only the number of officially-documented Crimes a perpetrator was responsible for, not including sexual homicides or Crimes occurring in the context of sexual homicides. This model was significant, $\chi^2(16) = 84.965, p < .001$. The Nagelkerke R^2 was .636, and the Hosmer-Lemeshow statistic showed a good fit for this model, $\chi^2(8) = 8.919, p < .349$. Model 3 correctly classified 89.2% of the cases, with 80.4% of the Serial and 95.7% of the Non-Serial cases classified accurately.

The variables that remained in Model 3 following regression procedures are displayed in Table 9, along with their associated regression coefficients and p values. The same victim and offender variables remained in Model 3 as in the previous model. Regarding specific Crimes, several types of violent offenses significantly contributed to the prediction of group membership in Model 3, such as assault, sexual assault, attempted murder, and weapons offenses. Examination of the results showed that the number of attempted murders an offender had committed was an important predictor. For every one-point increase in this number, the odds of a particular case being classified as Serial increased by 4.646. The regression coefficients for two

of the predictors in this model, assaults and “other non-sexual offenses,” indicate that as the number of these Crimes increased, the likelihood of a case being classified as Serial decreased.

Table 9
Logistic Regression Results for Model 3: Victim, Offender, & Crime Variables

Predictor	β	SE	Wald	OR	95% CI	<i>p</i>
Victim Sex^a						
Any Non-Female Victim	1.640	.786	4.352	5.158	1.104 – 24.088	.037
Victim Age^b						
Any Non-Adult Victim	.628	.590	1.131	1.873	.589 – 5.954	.288
Prostitution^c						
All Prostitute Victims	4.603	1.055	19.018	99.745	12.605 – 789.322	>.001
Offender Race^d						
			3.708			.295
Black	-.969	.760	1.627	.379	.086 – 1.682	.202
Hispanic	-20.488	14818.782	.000	.000	0.000	.999
Asian/Other/Unknown	1.760	1.355	1.689	5.814	.409 – 82.694	.194
Offender Employment^e						
			3.449			.327
Unskilled	.902	.721	1.566	2.463	.600 – 10.112	.211
Skilled	1.526	.877	3.030	4.600	.825 – 25.645	.082
Unknown	.199	1.166	.029	1.220	.124 – 11.989	.864
Crime Variables						
Assaults	-.849	.403	4.445	.428	.194 - .942	.035
Sexual Assaults	.433	.230	3.537	1.542	.982 – 2.421	.060
Attempted Murders	1.536	.575	7.147	4.646	1.507 – 14.325	.008
Property Offenses	.557	.318	3.059	1.745	.935 – 3.257	.080
Weapons Offenses	.711	.402	3.120	2.035	.925 – 4.478	.077
Other Sexual Offenses	1.217	.486	6.270	3.378	1.303 – 8.758	.012
Other Non-Sexual Offenses	-.395	.232	2.888	.674	.427 – 1.062	.089

N=139; Reference Categories: ^aFemale; ^bAdult; ^cAny Non-Prostitute Victim; ^dWhite; ^eUnemployed

Results of this analysis also indicated that adding these Crime variables to this set of predictors increased the regression coefficients of the variables that were included in previous models, thereby increasing their predictive power. For instance, the regression coefficient for the “Prostitution” variable has increased from 3.613 in Model 2 to 4.603 in Model 3. The odds ratio for this variable in Model 3 indicates that a case in which all victims had engaged in prostitution is over 99 times more likely to be Serial than Non-Serial.

A final model began with the victim and offender variable sets, and offense variables that reflect all known Crimes and Antisocial Acts committed by an offender. These variables were coded to exclude Crimes and Antisocial Acts that co-occurred with sexual homicide. The variables tested in Model 4 are those that would typically be available to law enforcement in the later stages of a sexual homicide investigation, after suspects had been developed, criminal records obtained, and follow-up inquiries conducted to uncover antisocial acts not resulting in arrest or official sanctions. Table 10 displays the variables that remained in Model 4 and their regression coefficients, significance values, and associated odds ratios.

Table 10

Logistic Regression Results for Model 4: Victim, Offender, and Antisocial Variables

Predictor	β	SE	Wald	OR	95% CI	<i>p</i>
Victim Sex^a						
Any Non-Female Victim	1.981	.931	4.524	7.247	1.168 – 44.954	.033
Victim Age^b						
Any Non-Adult Victim	.788	.633	1.551	2.199	.636 – 7.602	.213
Prostitution^c						
All Prostitute Victims	5.665	1.228	21.285	288.628	26.009 – 3203.035	>.001
Offender Race^d						
			2.756			.431
Black	-.986	.856	1.329	.373	.070 – 1.995	.249
Hispanic	-22.074	13231.146	.000	.000	0.000	.999
Asian/Other/Unknown	1.465	1.444	1.030	4.328	.256 – 73.295	.310
Offender Employment^e						
			1.074			.783
Unskilled	.103	.726	.020	1.108	.267 – 4.593	.888
Skilled	.641	.890	.519	1.899	.332 – 10.867	.471
Unknown	-.515	1.072	.231	.598	.073 – 4.886	.631
Antisocial Variables						
Robberies	.727	.265	7.509	2.068	1.230 – 3.477	.006
Frauds/Forgeries	.927	.627	2.189	2.527	.740 – 8.631	.139
Acts of Voyeurism	.876	.464	3.565	2.401	.967 – 5.962	.059
Attempted Murders	1.747	.612	8.155	5.740	1.730 – 19.046	.004
Other Offenses	-.397	.200	3.938	.672	.454 - .995	.047
Sex-Motivated Incidents	.333	.104	10.305	1.395	1.138 – 1.709	.001

N=139; Reference Categories: ^aFemale; ^bAdult; ^cAny Non-Prostitute Victim; ^dWhite; ^eUnemployed

Model 4 was significant, $\chi^2(15) = 93.105$, $p < .001$, and correctly classified 87.1% of cases. For Serial cases, 94.6% were classified accurately, while 84.8% of Non-Serial cases were correctly classified. The Nagelkerke R^2 for Model 4 was .679. A good fit for this model was indicated by the Hosmer-Lemeshow statistic, $\chi^2(8) = 6.175$, $p < .628$. Results showed that increases in the number of robberies, attempted murders, and sexually-motivated incidents in a case each increased the likelihood of a case being classified as Serial rather than Non-Serial. For example, a one-point increase in the number of attempted murders committed by an offender made a case nearly six times more likely to be Serial. The only offense variable for which an increase in frequency was associated with a decreased likelihood of a case being Serial in nature was “Other Offenses.” In general, inclusion of variables measuring Crimes and Antisocial Acts in this model increased the utility of the complete set of predictors. For example, the regression coefficient for Prostitution increased from 4.603 in Model 3 to 5.665 in Model 4. The odds ratio also increased, such that a case involving only prostitute victims was over 288 times more likely to be Serial than a case in which any victim was not a prostitute.

Table 11 shows the model Chi-square, Nagelkerke R^2 , Hosmer-Lemeshow statistic, and overall classification accuracy for each of the four models. When comparing the results obtained for all four models tested, Model 3 was found to have the highest overall prediction accuracy, while Model 4 had the largest Nagelkerke R^2 value. Model 4 also had the largest Chi-square value, though all four models tested were shown to be significant, with p -values of less than .001. Model 3 was found to have the largest value for the Hosmer-Lemeshow goodness-of-fit statistic. However, all models tested were found to have a good fit to the data.

Table 11

Comparison of Model Utility

Model	Indicator			
	Model fit	Hosmer-Lemeshow goodness-of-fit statistic	Nagelkerke R^2	Classification Accuracy
Model 1	$\chi^2 = 32.040, p < .001$	$\chi^2 = 0.092, p = .955$.286	77.0%
Model 2	$\chi^2 = 47.686, p < .001$	$\chi^2 = 4.924, p = .766$.404	79.1%
Model 3	$\chi^2 = 84.965, p < .001$	$\chi^2 = 8.919, p = .349$.636	89.2%
Model 4	$\chi^2 = 93.105, p < .001$	$\chi^2 = 6.175, p = .628$.679	87.1%

Chapter Five

Discussion

Offender Characteristics

Many of the features of the sexual homicide perpetrators in this sample were consistent with those noted in the extant literature. No significant differences were found between the serial and non-serial offenders with regard to racial characteristics, but of the 139 sexual murderers included in this sample, just over two-thirds were White (64.7%). However, nearly 30% of the offenders studied here were Black ($n = 38$), with 27 in the non-serial group and 11 in the serial group. This is a larger proportion than that typically found in studies of sexual homicide perpetrators (e.g., Ressler et al., 1986; Warren et al., 1996). The non-random nature of this sample may not accurately represent the racial characteristics of sexual homicide perpetrators in general, but one thing that is clear from the results found here is that there is at least a subset of Black sexual murderers, including some serial offenders. This finding is in contrast to the information widely portrayed by the media (Walsh, 2005). Interestingly, there were no Hispanic serial offenders in this sample, although real-world case examples exist. Hazelwood suggested that the acting out of ritualistic sexual behaviors was more related to socioeconomic status and social class than to race. He theorized that as greater amounts of Black and Hispanic populations advanced to the middle class, the proportion of Black and Hispanic sexual offenders would also increase (Hazelwood & Michaud, 2001).

An interesting finding emerged regarding offender employment. For the 121 men whose case files provided information about this variable, over three-quarters were classified as being jobless or employed in unskilled positions. This was true for both serial and non-serial offenders, suggesting that sexual murderers in general are likely to be underemployed or not

employed at all. It should also be noted that, even among the offenders who held skilled jobs, none were employed in professional or educationally-advanced work. The most advanced jobs held by offenders studied here were radio operator and city code enforcement officer. This absence of exceptionally intelligent offenders employed in white-collar or better occupations runs counter to the media myth that sexual homicide offenders, particularly serial murderers, are “evil geniuses” (Morton & Hiltz, 2008, p. 5). Interestingly, although no significant differences were found between offender groups with regard to work characteristics, a higher proportion of the serial group worked in skilled jobs than did those in the non-serial group. The reason for this difference is not immediately obvious. It is possible, however, that the serial sexual murderers display a higher degree of functioning than non-serial offenders, and thus have greater ability to perform more complex jobs, or are more likely to advance in their jobs to skilled positions.

An additional observation was made regarding offenders’ employment. Roughly 20% of the men in each group were either actively members of the military at the time they committed sexual homicide, or had histories of military service. The difference between the serial and non-serial groups on this variable was not significant, but the fact that 19.4% of the offenders in the sample had military experience is notable. Godwin (2000) found that 27% of the 107 serial murderers in his sample had prior military service. Castle and Hensley (2002) also recognized that a notable minority of serial murderers had military experience, and suggested that the fact that inflicting violence on others is behaviorally reinforced in the military might have conditioned them for committing murder in later civilian life.

Victim Characteristics

The sexual homicide victims of the offenders analyzed in the current study were similar in major features to sexual homicide victim groups described in prior research. Consistent with

the current literature (Hill et al., 2008; McClellan, 2010; Schlesinger, 2001a) the majority of victims studied here were female, and most of the offenders ($n = 123$; 88.9%) preyed exclusively on female victims. Only twelve men in this sample killed only male victims, and there were no significant differences found between the serial and non-serial groups with regard to victim sex. As in previous research (Chan & Heide, 2009; Hill et al., 2008), most of the victims of the offenders in this sample were adults, and over 70% of the men in each group killed only adult victims. A small proportion, eighteen percent of the entire sample, preyed only on juvenile victims. Despite the absence of significant differences between the serial and non-serial perpetrators regarding victim age categories, nearly a quarter of the serial murderers were found to have offended against victims who belonged to different age categories. It appears that, while most sexual homicide offenders seem to display a preference for victims who fall within a particular age range, there exists at least a subset of men who do not seem to select victims on the basis of age. Future studies should seek to investigate this in greater detail. The presence of a sizable minority of sexual murderers who are seemingly equally likely to offend against victims across age categories could have important implications for homicide investigators who are seeking to determine whether two or more cases of sexual homicide have been committed by the same perpetrator.

A commonly-held belief about sexual homicide is that it is an intra-racial crime, where the offender chooses victims who belong to the same racial group as himself (Hazelwood & Michaud, 2001; Meloy, 2000). In the present study, analyses revealed that nearly 75% of the serial offenders, and over two-thirds of those in the non-serial group, chose victims of their own race. This difference was significant between the groups, and suggested that serial offenders are somewhat more likely to commit intra-racial homicides than non-serial offenders. However, a

notable subset of the men in each offender group murdered victims who were of a different race than themselves. In addition, some of the serial sexual killers chose victims who belonged to multiple racial categories, suggesting that this criterion was not critically important to these offenders. Another interesting finding was that offenders in both groups and across racial backgrounds seemed more likely to murder White victims, rather than victims of minority groups. Results indicated that 81.7% of the non-serial offenders and 65.2% of the serial murderers in this sample offended exclusively against Whites. The number of offenders who only offended against White victims ($n = 106$) was larger than the number of White offenders overall ($n = 85$). This indicates that, while White offenders were murdering White victims, minority offenders were also perpetrating their crimes against White victims. This finding is markedly different from widely-held beliefs about sexual murderers (Beasley, 2004; Godwin, 2000; Chan & Heide, 2009), and has important investigative implications. Due to the common notion that sexual homicide offenders are likely to be of the same racial background as their victims, law enforcement investigators may erroneously assume that a White victim has been killed by a White perpetrator. However, the current results suggest that it is not uncommon for offenders who belong to minority groups to prey exclusively upon White victims.

Though not originally a focus of this research, an important finding emerged regarding the factors that sexual homicide offenders may consider when selecting victims. Overall, nineteen men in this sample, or 13.7% of the entire offender group, chose victims who had engaged in prostitution. Serial and non-serial offenders in this study were found to differ significantly with regard to this victim variable. Only four (4.3%) of the men in the non-serial group chose prostitute victims, in contrast to nearly a third ($n = 15$; 32.6%) of the perpetrators in the serial group. It is important to note that this number reflects only those offenders who

exclusively murdered prostitutes, and does not include any serial offenders who may have killed one victim who was a prostitute and other victims who were not. Thus it seems reasonable to hypothesize that the number of sexual homicide offenders who prey on prostitute victims is greater than the number found here who exclusively offended against prostitutes.

The idea that those engaged in prostitution are at increased risk of becoming victims of violent crimes, including murder, has been discussed in previous research. Quinet (2007) described prostitutes, homeless people, and runaways as being among the “missing missing,” because they are not likely to be the subject of police investigations. Egger (1997) referred to such victims as “the less-dead” (p. 74), because they are members of groups that are typically not valued or missed by the larger society. Indeed, as Godwin noted, in certain high-crime areas, such as those that contain prostitute “strolls,” it is not unusual for an individual to be unseen for weeks at a time, and that even if reported, “police are likely to regard their disappearance as trivial” (1998, p. 81). Research has suggested there is a correlation between the locations of known prostitute activity and the areas in which serial murderers search for victims (Godwin, 1998). A location may possess certain features that make it more hospitable for streetwalking, because there is a decreased risk of being detected and arrested. However, these same features also decrease the serial homicide offender’s risk of apprehension (Godwin, 1998).

The fact that a notable proportion of the serial sexual homicide perpetrators in the current study selected prostitute victims may be due to the offenders’ awareness of risk factors for apprehension. That is, these offenders are not demonstrating a preference for prostitute victims, *per se*, but are aware of the hazards associated with abducting a victim who is not a member of a marginalized group, and whose disappearance is more likely to be noticed and reported by others. The selection of victims who were members of transient or under-valued groups, such as

prostitutes, has been found to be a contributing factor to homicide cases remaining unsolved over time (Mott, 1999). There are a number of ways that this knowledge could be used assist law enforcement personnel in general, and homicide investigators in particular. For instance, part of the investigative strategy used in solving the sexual homicide of a prostitute might involve seeking potential witnesses or surviving victims among other sex workers (Hazelwood & Michaud, 2001). In the aftermath of a sexual homicide, establishing increased police patrols in areas known to be used for prostitution might generate leads or even prevent the abduction of additional victims. In addition, adopting public policy that offers amnesty of some sort for prostitutes who come forward to provide information regarding an unsolved sexual murder might increase the likelihood that sex workers' disappearances are reported to police, and thus facilitate the apprehension of the perpetrator.

Offenders' Criminal and Antisocial Histories

The hypothesis that most sexual homicide perpetrators, whether serial or non-serial, would have prior criminal records was supported by these data. The majority of offenders in the sample ($n = 110$; 79.1%) had criminal histories that were documented in official records. There was no significant difference on this variable between the offender groups, with 80.4% of the serials and 78.5% of the non-serial murderers having previous arrests. As in previous research (e.g. Hickey, 2006; Schlesinger et al., 2010), a small group of offenders here did not have an official criminal record. The existence of such offenders, for whom a sexual homicide is their first officially-documented crime, suggests that investigators should not eliminate a potential suspect simply because he does not have an arrest history.

Nearly one-third of the sample had a history of arrests as a juvenile. The serial and non-serial groups also did not differ with regard to juvenile criminal behavior. It is important to note,

however, that the number of sexual homicide offenders here who had juvenile arrest records is likely an under-representation of the number of these offenders who actually engage in criminal behavior in youth. Prior studies suggest that sexual homicide offenders commonly have engaged in prior offending in youth or adolescence (e.g., Langevin et al., 1988). However, it is possible that the archival data used here did not address the presence or absence of juvenile offending in many cases. It is also likely that juvenile arrest records were sealed or otherwise unavailable.

It was also hypothesized that the use of information regarding past antisocial behavior other than that documented in official records would illuminate a sizeable discrepancy between the number of offenses these men committed and the number for which they were actually charged. Analyses indicated that the 139 offenders included in this sample were responsible for 1,255 separate incidents of criminal behavior. It should be noted that because each incident may have involved the commission of multiple types of crimes, the actual damage inflicted during these criminal events is much greater than portrayed in these data. When antisocial acts were added to the officially-documented crimes that had been committed by the men in this sample, these offenders were responsible for a substantial number of illegal acts, 1,580 in all. This is an average of approximately 11 criminal or antisocial acts per offender. When criminal incidents involving the commission of sexual homicide were excluded from analyses, these men were still responsible for 1,291 criminal events. This significant discrepancy between sexual murderers' arrest histories and their actual antisocial backgrounds is consistent with prior research and theoretical work about the difficulties in relying solely on official records (Greenberg, 1998). It appears that sexual murderers routinely commit additional offenses for which they are not officially charged or sanctioned (Liebert, 1985; Prentky et al., 1997). The results of the current study underscore the need for investigators and researchers to incorporate data regarding prior

offending from multiple sources. While many previous studies have not used this approach, some researchers have combined official records with information from other sources, such as court transcripts and mental health evaluations (Warren et al., 1996).

Comparative analyses revealed that the serial group was responsible for significantly more criminal and antisocial acts than the non-serial group. The average serial sexual murderer in this sample perpetrated 15.46 such incidents, while the average non-serial offender was responsible for 9.34 instances of crime or antisocial acting-out. When considering all crimes and antisocial acts, and after all criminal events involving sexual homicide were excluded from analyses, the difference between the offender groups remained significant. The non-serial group was responsible for 762 such acts, an average of 8.19 per offender. The serial offenders had committed 529 such acts, averaging 11.50 per person. The difference between offender groups was not significant when considering only officially-documented crimes. This suggests that the serial offenders as a group are engaging in greater numbers of antisocial acts for which they are never charged. The reason for this is unclear, but one possibility is that the serial offenders are more skilled at avoiding apprehension than the non-serial group. The result is criminal records that appear similar, but antisocial backgrounds that are significantly different from each other.

With regard to the types of offenses committed by the men in this sample, the results of this study did not support the notion that sexual murderers specialize in either homicide or sexual offending. These men committed offenses of all types, including crimes and antisocial acts involving sexual activity, theft, and interpersonal violence, as well as drug-related offenses. This is in line with previous research that suggests that offenders who commit sexual crimes, homicide, or sexual homicide do not tend to specialize in a particular type of crime (e.g., Nicole & Proulx, 2007b; Wright et al., 2008). Few significant differences were found between the serial

and non-serial perpetrators in terms of their rates of committing specific types of offenses. It is noteworthy that, when significant differences were found between the groups, the serial sexual homicide perpetrators were responsible for a greater number of the crime in question. The only exception was domestic violence, which occurred more frequently in the non-serial group. The serial murderers, however, engaged in significantly higher numbers of several violent and sexual offenses, such as attempted homicide, aggravated assault, kidnapping, rape, and sexual assault. Many of these differences were significant whether the analysis included only officially-documented crimes or antisocial acts as well. These findings suggest that, while both offender groups engage in numerous types of diverse criminal and antisocial behavior, the serial sexual homicide perpetrators were significantly more likely to have engaged in additional acts involving sex and/or violence, many of which never came to the attention of police. Based on the compulsive nature of serial sexually-motivated homicide (Schlesinger, 2004b), it seems likely that these offending patterns are indicative of a greater degree of compulsivity on the part of the serial offenders than the non-serial ones. It is probable that serial sex murderers experience a greater degree of feeling compelled to act on their sexual needs and desires (Myers et al., 2006), and this tendency leads them to be more likely to commit additional sexual homicides, as well as other sexual and violent acts against others.

Lending further support to the notion that physical violence and aggression often become part of sex murderers' arousal patterns (Warren et al., 1996), the offenders examined here were responsible for numerous incidents of sexually-motivated criminal and antisocial behavior. When the serial and non-serial groups were combined, the 139 men in this sample were found to have committed 275 sexual murders. This figure included only those murders that resulted in official sanctions, such as arrests or convictions. Because official records are not likely to

include all of an offender's past illegal acts (Greenberg, 1998), the 275 sexual homicides linked to the men in this sample can be considered a minimum estimate of the actual number of victims they claimed. Analyses were also conducted to determine how many sexually-motivated criminal or antisocial incidents were perpetrated by these offenders, in addition to sexual homicide. These may include offenses involving sexual activity, such as rape or sexual assault, but may also include crimes such as burglary, robbery, kidnapping, and aggravated assault, if there is evidence that the commission of the act itself was done for the purpose of providing sexual gratification to the offender. Results indicated that the total group of sex murderers was responsible for 346 such incidents, *after* all crimes and antisocial acts co-occurring with instances of sexual homicide were excluded from the analyses. When considering the total number of criminal and antisocial incidents perpetrated by these men, the sexually-motivated crimes constituted 26.8% of the total.

The serial and non-serial groups were then compared with regard to commission of sexually-motivated illegal acts, excluding homicide. Results indicated that the serial group was responsible for 201 such incidents, an average of 4.37 per offender, while the non-serial group had committed 145 incidents, averaging 1.56 each. The significant difference between the groups on this variable indicated that the serial sex murderers were also engaging in greater numbers of sexually-driven crimes of various types than were the non-serial offenders. This finding provides additional evidence for the hypothesis that those who commit serial sexual homicide are more sexually compulsive and prone to act on aberrant sexual drives than are those who commit non-serial sex murder. As many clinicians and researchers have noted, the offender who acts on his sexual compulsions by inflicting violence on another person is likely to repeat

his offenses (Hickey, 2006; Schlesinger, 2004a). This conclusion seems to be well-supported by the results of the current study.

Taken together, the findings of this research highlight the frequency with which these offenders, particularly those in the serial group, commit various criminal and antisocial acts. Analyses indicated that many of these illegal acts were not officially recorded in offenders' arrest and conviction histories, and that a noteworthy subset of their antisocial behaviors appears to have been driven by a desire to achieve sexual gratification. Previous studies have found that public fear increases in reaction to sexual homicide (Herkov & Biernat, 1997), and that people perceive sex murder to be among the most serious types of crime (Wolfgang et al., 1985). Communities affected by a sexual homicide perpetrator, particularly a serial one, often respond by spending additional resources on protective measures (Lee & DeHart, 2007).

A study by DeLisi and colleagues (2010) estimated the costs associated with homicides committed by a sample of 654 offenders. These figures included victim costs, criminal justice system costs, such as the cost of investigations, legal defenses, and incarceration, and lost earnings due to the offenders' incarceration. They concluded that "the assorted costs of murder are staggeringly high," (DeLisi, Kosloski, Sween, Hachmeister, Moore, & Drury, 2010, p. 506), and estimated that a single homicide costs approximately \$17,250,000. They noted that one offender in the sample had committed nine murders, at an estimated cost of over \$155,000,000, while another had committed a series of thirteen rapes in addition to homicide, at an estimated cost of over \$5,800,000. From such data, it seems reasonable to conclude that the sexual homicide offenders examined in the current study have inflicted enormous damage not only to their victims, but to society as a whole, in terms of monetary costs, public fear, and intangible emotional damage to victims' families and communities. It is also quite likely that sexual

homicides actually cost more than the estimates derived from prior research, due to the increased number of victims, greater public spending on protective measures, and higher investigative costs due to the difficulty in solving such cases. The results of the current study suggest that serial sexual murderers, in particular, are also likely to have committed many offenses that are diverse and often sexually-driven. Future studies may seek to determine whether these offenders in fact exact a much higher toll on society, due to the extent and nature of their criminal and antisocial histories.

Temporal Features and Patterns

Current analyses suggested that the age at which sexual homicide perpetrators commit their earliest illegal acts varies widely, and can begin in childhood. Some of the offenders studied here began engaging in antisocial activity as early as age seven. Due to the fact that many of the case files were silent as to the presence or absence of a juvenile arrest history, the number of men in this sample who were found to have begun offending as minors ($n = 41$) can be considered a low estimate of the true proportion of sex murderers who begin their criminal careers during childhood and adolescence.

Examination of the total length of sexual homicide perpetrators' criminal careers revealed that, while some were apprehended less than a year from the time of their first crime or antisocial act, others managed to continue offending for several decades. A significant difference was found between the offender groups with regard to criminal career length. For non-serial offenders, the average career was 8.24 years in duration, while the serial offenders remained at large for an average of 14.31 years. One explanation for this difference could be that the serial offenders began their criminal careers earlier in life than did the non-serial offenders. However, comparative analysis of offenders' ages at the time they began committing crimes did not differ

significantly between the groups. Another explanation for the difference in the length of serial and non-serial perpetrators' careers is that the serial offenders possess knowledge or skills that permit them to remain free to commit additional crimes in comparison to non-serial sex murderers. This notion seems quite plausible, especially when considered in conjunction with many of the other significant differences found between the offender groups in this study.

The time elapsing between the commission of an offender's final sexual homicide and his final arrest was also found to differ significantly between offender groups. Of all the variables measured in the current study, this one is the most closely related to the offenders' avoidance of apprehension by law enforcement. Analyses indicated that the men in the serial group remained at large for an average of about one year and eleven months, while the non-serial offenders were arrested, on average, about eleven months after they perpetrated a sexual murder. This is consistent with other results of this study, because it indicates that the serial murder group appears more skilled at avoiding arrest. However, no conclusions can be drawn directly from this research as to why serial sexual homicide perpetrators remain free longer than non-serial ones. It could be that they are more knowledgeable about forensic and investigative techniques, and therefore take steps to inhibit identification and evidence collection. As suggested by other results of this research, it may be that serial offenders tend to be more functional, in general, than non-serial ones, and this tendency manifests itself not only in avoidance of apprehension, but in employment status and the number of antisocial acts in offenders' backgrounds that did not result in official charges or sanctions.

Future studies should seek to identify the underlying factors that contribute to serial sex murderers' ability to remain at large for long periods. Research on how sexual homicide perpetrators were ultimately identified and taken into custody (e.g., arrest for another crime,

forensic techniques linking them to a sexual murder, a tip from an informant), and assessing whether serial and non-serial offenders differ in how they were apprehended, would likely increase understanding of how serial perpetrators manage to ensure that they remain free to continue offending. Additionally, increasing knowledge about the factors that contribute to offenders' ability to evade authorities could provide valuable information to investigators, as well as lead to the development and implementation of early intervention strategies during the initial years of these offenders' careers.

One of the aims of the current study was to investigate whether any temporal patterns could be identified within the offense histories of serial and non-serial sexual homicide perpetrators. Although popular media have long suggested that these offenders, particularly serial murderers, tend to commit crime in a rigid and cyclic fashion, it was hypothesized that few such patterns would be observable in the backgrounds of the men in this sample. While Lange (1999) identified three types of temporal patterns in serial homicide, others have noted that the timing of offenses may depend on multiple factors (Turvey, 2008), and may be motivated by some type of precipitating event in the offender's personal life (Holmes & Holmes, 2002). In the current study, data on offenders' prior crimes and antisocial acts were included in order to create a chronological record of the timing of each perpetrator's offense behavior. Analyses were designed to search for temporal patterns when all offense types were examined together, and then for specific subsets of offense types: sexual offenses only, violent offenses only, and sexual homicide only (for serial perpetrators).

As hypothesized, many of the offenders in this sample produced no discernable patterns with regard to the timing of their antisocial acts, regardless of what subset of offenses were examined. From 40% to 50% of both the serial and non-serial groups were found to have no

obvious temporal patterns in their histories. It is notable that when all crimes and antisocial acts were analyzed together, over a quarter of the men in both perpetrator groups produced patterns of increasing offense frequency. Subgroups of sexual murderers were also found to increase their rates of committing violent offenses and sexual offenses over time. A number of serial sexual homicide perpetrators were found to produce pulse patterns with regard to their past violent acts, as well as past sexual offenses. When the dates of sexually-motivated homicides were examined for 28 offenders in the serial group, the most frequently observed pattern was one of increased homicide frequency. Taken together, these results tend to support the idea that most offenders do not produce observable temporal patterns in their histories of antisocial and criminal behavior. However, some temporal patterns were found to exist for some offense types. While no significant differences were found between the serial and non-serial groups in these analyses, results also suggest that serial sex murderers may be offending over time in different ways than non-serial sexual homicide perpetrators.

Although the temporal analyses performed here were novel and addressed an understudied area of the literature on sexual homicide, a number of cautions and limitations are warranted. First, even though researchers went to great lengths to include temporal data on all known criminal and antisocial acts, it is quite possible that these data are still incomplete and do not reflect every offense that each offender committed. In addition, because of the need to have a history of at least three of the offense type being analyzed, many offenders' records were excluded from temporal analyses. Those whose historical data remained for analysis may not be representative of the population of sexual homicide offenders, since many would be considered extremely compulsive and repetitive offenders, having perpetrated at least three violent or sexual

crimes prior to carrying out a sex murder. The fact that sexual homicide itself has a low base rate of occurrence further limits the generalizability of these results to larger populations.

There are also multiple unknown factors that could affect the presence or absence of temporal patterns in offense behavior. For example, it is possible that an offender may have begun to increase his rate of committing a particular type of crime, but was apprehended before any pattern would have been observable in his criminal history. Based on information found in the case materials, it also seems likely that an offender's personal circumstances may influence the temporal features of his criminal activity in idiosyncratic ways that are not easily measurable by usual means. For instance, one of the serial sexual murderers in this sample was found to have committed one murder each summer over the course of multiple years, but his other offenses did not produce any discernable temporal pattern. Follow-up investigation indicated that this offender only committed murders during periods when his wife was away at a religious retreat, which occurred yearly, but not on a rigid schedule. Overall, review of the temporal characteristics of offenders' histories in the current study suggested that any patterns present were more likely to be unique and idiosyncratic to the perpetrator, such as in the example above.

An offender's decisions about when to engage in antisocial acts may be driven by a number of factors other than a preference for a particular schedule or adherence to a rigid offense cycle. A number of explanations for the timing of offenders' crimes and antisocial behaviors have been proposed. Holmes and Holmes (2002) note that the compulsion to kill may spur a perpetrator to action, even if he prefers to act at another point in time. However, an offender whose compulsion to act recurs at regular intervals may choose to fulfill such needs through other means, including soliciting prostitutes or engaging in elaborate fantasies alone or with compliant partners (Hazelwood & Michaud, 2001), which will not be evident in an offender's

criminal history. Others have pointed out that sexual homicides are often planned in offenders' fantasy lives, but the timing of the actual act may be based on when an opportunity becomes available (Hazelwood & Douglas, 1980), or the occurrence of precipitating events in the offender's personal life, such as a job loss or substance abuse (Holmes & Holmes, 2002). With regard to perpetrators who engage in more frequent illegal acts over time, Hazelwood described "the bulletproof syndrome," (Hazelwood & Michaud, 2001, p. 72), which can occur when an offender becomes over-confident and comes to believe that he will not be apprehended. This overconfidence leads the perpetrator to take unwise risks, take more shortcuts, and engage in criminal activity more often than had previously been the case (Morton & Hilts, 2008). Because of the numerous factors underlying the timing of an offender's criminal and antisocial behaviors, temporal characteristics alone are not likely to explain when a perpetrator chooses to act out on his desires. The analyses conducted in the current study provide additional information regarding temporal patterns and the chronological sequence of sexual homicide perpetrators' past offending, but more empirical work on this topic is needed.

Development of Predictive Models

Keppel and Birnes (2003) noted the need for law enforcement to be able to quickly recognize whether a given sexual homicide case may have been perpetrated by a serial offender. In an effort to identify sets of variables that might assist in distinguishing serial from non-serial sexual murderers, the current study employed logistic regressions procedures to examine four predictive models. Each incorporated a set of variables that would likely be known to law enforcement personnel at various stages of a sexual homicide investigation. All four models were found to significantly differentiate serial and non-serial sex murderers. The results found here suggest that sets of factors that occur in conjunction with one another at a crime scene can

provide useful information regarding whether the potential perpetrator is likely to have committed additional sexual murders. The first model included only victim demographic variables, and indicated that cases with male victims were more likely to be serial than non-serial, as were cases with victims whose ages fell into categories other than “adult.” However, the results of this most basic predictive model must be interpreted with caution, as most victims of sexual homicide, whether serial or non-serial, are adult females (McClellan, 2010), so to assume that most serial sexual homicide cases involve elderly male victims, for instance, would be incorrect. Caution is also warranted in viewing these results because of the non-random nature of the current sample, which may over-represent the number of victims who do not possess typical characteristics.

The second model, including selected offender variables, was found to correctly classify about 80% of the cases in the sample. As with the victim model, care should be taken when considering the overall utility of the model. For example, results showed that White offenders had a higher likelihood of being serial sex murderers than did offenders belonging to minority groups. However, as previously discussed, the notion that all serial murderers are White is a myth, and serial sexual homicide perpetrators of other racial and ethnic backgrounds do exist (e.g., Walsh, 2005), though they may not have been accurately represented in the current sample.

Requesting suspects’ arrest and conviction records is a common investigative strategy (Hazelwood & Michaud, 2001), so the variables examined in the third proposed predictive model concerned offenses documented in official records. The final model included offenses that had not resulted in arrest or official sanctions, but would generally be discovered in the course of conducting detailed interviews of witnesses and those close to the suspects in a case. Both of these models were found to have predictive utility, and correctly classified nearly 90% of the

cases in this sample. As seen in comparative analyses, the serial offenders were more likely to have engaged in various violent and/or sexual offenses, in addition to having committed sexual homicide. Taken as a whole, results of the two “prior offense” models suggest that serial sexual homicide perpetrators are more likely to have committed additional crimes for which they were not apprehended, whereas non-serial offenders were somewhat more likely to have a higher number of arrests for crimes such as simple assault.

One of the most robust findings that emerged from the logistic regression procedures used in the current study was that cases in which victims had engaged in prostitution were much more likely to have been perpetrated by a serial offender than a non-serial one. This variable was found to be important even when only basic victim variables were analyzed. The inclusion of offender demographic variables and historical offense information increased the discriminative ability of this victim characteristic. For example, in the fourth model, which included victim, offender, criminal, and antisocial variables, a case in which the murder victim was a prostitute was over 288 times more likely to have been the work of a serial sex murderer than a non-serial perpetrator. Previous work has suggested that members of marginalized groups are at increased risk of becoming victims of crime in general, and sexual homicide in particular (Hickey, 2006; Quinet, 2007). This notion is supported by the results of the current study’s logistic regression analyses, which suggest that investigators approach cases in which prostitutes have been sexually murdered with increased awareness of the potential that the perpetrator is a serial offender.

The relative predictive utility of all four of the proposed models indicates that incorporating information regarding the nature and types of offenses in a suspect’s history may increase the usefulness of other variables. While all of the models tested here were found to

have a good fit to the data, further studies are needed to replicate and build upon the current findings. As a practical matter, these results suggest that the development of predictive models to assist in distinguishing serial and non-serial sexual homicide offenders is feasible and an area that warrants additional empirical attention.

Strengths

The current study's design incorporated several elements that address many of the difficulties associated with conducting research on the topic of sexual homicide. First, this study's samples of serial and non-serial sexual homicide offenders were larger than those found in many existing studies of this population. The research archive contained over 200 cases, and of those, 93 non-serial and 46 serial sexual homicide cases were included in this study's analyses. Also, the archival dataset used here included case files drawn from multiple states, in multiple jurisdictions, and across time periods, which increases the extent to which the results obtained here can be appropriately generalized to other cases of sexual homicide in the United States. Another strength of this study's design was its intentionally conservative inclusion criteria, focusing on ensuring that the cases selected for analysis were in fact cases of sexually-motivated homicide, where the act of killing was sexually gratifying to the offender. Many cases from the archive were unclear with regard to how sexual dynamics related to the crime in question, and these were excluded from the current study. While this decreased the potential sample size, it allowed researchers to be more assured that the analyses and results obtained here are applicable to sexual homicide cases, in particular, rather than cases that involved sexual aspects of unclear meaning and purpose.

Few previous studies of the perpetrators of sexual homicide have specifically focused on the detailed criminal and antisocial histories of such offenders. Even fewer studies have sought

to investigate the temporal characteristics of these offenders' histories, or to examine whether patterns exist with regard to the timing of antisocial acts. The current study aimed to address both of these conceptual areas, and utilized combinations of offense data and coding methods not often found in previous research. Many prior studies of offenders' criminal backgrounds relied only on official records (e.g., Trojan & Salfati, 2010) which tend to underestimate the true extent of past criminal and antisocial behavior (Greenberg, 1998). The current research incorporated information from various additional sources beyond official records provided by law enforcement agencies. Using multiple sources to collect this information provided a more accurate and complete account of offenders' histories. It also allowed researchers to analyze discrepancies between the information contained in official records and that obtained from additional sources, which were found to differ significantly for offenders in this sample.

An additional strength of the current study's coding procedures is the use of offense data that is calculated in numerous different ways, which permitted several comparative analyses to be performed with these data. For instance, coding the number of criminal incidents each offender had committed provided different information than the quantity of specific types of offenses he had perpetrated. These figures allowed researchers to better understand the frequency with which sexual homicide perpetrators were committing illegal activity, regardless of the number of different offenses took place during a single incident. Totals for specific offense types were also calculated with, then without, sexual homicides and co-occurring crimes.

Most of the analyses that compared serial and non-serial offenders regarding the commission of specific types of offenses were conducted with sexual homicide incidents excluded. Performing comparisons between offender groups in this way eliminated potential confounding effects that would be posed by including sexual homicide incidents. Logically, the

serial offender group was expected to have committed a much greater number of sexual homicides than the non-serial group. Offenses that often co-occur with sexual homicide, such as rape, sexual assault, and kidnapping, would be present to a much higher degree in the backgrounds of serial sex murderers when compared to non-serial perpetrators. Thus, any significant differences found in rates of such offenses would be attributable to the discrepant number of sexual homicides perpetrated by the offender groups, not due to any other difference that might exist in serial and non-serial sex murderers' antisocial backgrounds. Excluding sexual murders and their co-occurring offenses from analyses permitted researchers to conclude that the serial offenders' backgrounds were marked by a greater prevalence of violent and sexual acts than those of the non-serial offenders, *and* that this difference was not due to crimes committed in conjunction with sexually-motivated homicide.

An additional improvement over much of the extant literature on sexually-motivated homicide offenders relates to the current study's comparison group. Many existing studies have compared sexual murderers to sexual aggressors (Langevin et al., 1988), or single and serial homicide offenders without regard to sexual motivation (Kraemer et al., 2004). While useful, the conclusions drawn from these comparisons must be interpreted with caution, since any significant differences found between groups may be due to differences between those who kill and those who do not, or between offenders motivated by situational factors and those compelled to act by sexual desires. The current study attempted to use a "purer" comparison of serial and non-serial sexual homicide offenders, so that any differences found between these groups would shed light on what characteristics distinguish sexually-compulsive offenders who commit one act of homicide from those who repeatedly act on their desires. This is consistent with recommendations made in previous studies about the need to differentiate between these

offender groups. For example, Campos and Cusson (2007) found several differences between serial and non-serial sex murderers with regard to crime scene behaviors and developmental features, and pointed out the need to distinguish serial from non-serial offenders.

Limitations

Due to the difficulties inherent in conducting research on sexually-motivated homicide, any single study can be expected to have various limitations in design and scope. While the use of a large, archival dataset for the current study provided a large volume of information regarding offenders' criminal and antisocial backgrounds, the non-random nature of the sample limits the extent to which these results can be generalized to the population of sexual murderers. Additionally, it is possible that there are selection effects regarding the type of sexual homicide cases that were included in the archive, such as whether the case was high-profile or unusual to law enforcement in some way.

The offenders' membership in the serial versus non-serial sample is also potentially problematic in the case of those offenders who are documented to have committed only one sexual homicide, but who may have actually been responsible for a series of such crimes. The possibility of inaccurate classification has implications for all comparative analyses and predictive models investigated with logistic regression procedures. However, researchers sought to minimize this possible confound by deliberately implementing strict inclusion criteria for both offender groups in this study. Case files from the archive that were denoted as non-serial, but which contained information that suggested the offender may have been responsible for multiple sexually-motivated homicides, were excluded from the study sample. Despite these measures, it cannot be declared with certainty that none of the cases were misclassified in this way.

There are a number of issues associated with the historical data on criminal and antisocial acts that were used in this study. The use of official arrest records in conjunction with information about antisocial behaviors not resulting in arrest or sanctions provided a comprehensive overview of sexual murderers' past offending. However, it is possible, even likely, that these offenders also committed additional illegal acts that are not documented within the archival case materials. Some "victimless" offenses, such as drug abuse, soliciting prostitutes, or carrying illegal weapons, may be less likely than acts involving interpersonal violence to have come to the attention of authorities or collateral data sources typically discussed in these case files. Although researchers in the current study went to great lengths to include all available information, the possibility remains that these data still do not reflect the full extent and nature of these individuals' offense histories.

The coding procedures used for historical data related to prior offenses were designed to provide a comprehensive and accurate record of the criminal and antisocial backgrounds of the perpetrators of sexual homicide. As described above, data regarding prior illegal acts were coded to reflect the nature of the behavior that the offender engaged in, rather than the legal charges that may have appeared in official criminal records. For example, an offense in which the perpetrator unlawfully entered a house and raped the occupant would have been coded as one criminal incident involving rape and burglary, even if the case had been reduced to a single charge of burglary through plea-bargaining. While coding criminal and antisocial acts in this manner provides the most accurate information about prior offenses, it also limits the practical utility of some of the results of the current study. This is because investigators will often begin to research suspects' backgrounds by acquiring official criminal records, which will contain information about the arrest or conviction charges, even if these do not reflect the true nature of

the crimes that occurred. The results of the current study suggest that investigators should be on the lookout for a high number of kidnapping, sexual assault, and weapons offenses, among others, but these are quite likely to have been reduced or abandoned through the legal system, and may not appear on official records. However, it is assumed that law enforcement and investigative personnel will have access to much of the same information that was available within the archival case material used here. Though an official arrest and conviction history is a common early strategy used to evaluate a suspect's viability, investigations generally yield additional information over time regarding not only an offender's criminal past, but uncharged antisocial acts as well. It is this more detailed information, rather than legal charges alone, on which investigative personnel should rely when evaluating an offender's prior acts.

A final limitation of the coding procedures implemented here concerns the timing of an offender's criminal and antisocial acts. In calculating the time elapsing between offenses, researchers utilized the dates on which illegal acts occurred, rather than when they were reported, or resulted in arrest or conviction. In some cases, these dates overlap, but in many other cases they do not. In many instances, it was discovered that an offender had committed several crimes over a relatively short period, but they were unknown to authorities (and sometimes at all) for many years afterward. This is problematic for law enforcement and others who are reviewing official records in hopes of detecting patterns in a suspect's past, depending on whether each prior illegal act has been brought to the attention of authorities. To consider an illustrative example, imagine an offender who committed a rape in 1985, a theft in 1995, and two sexual homicides in 2000. The archival data used in the current study would contain information about all of these offenses, because the case files were compiled after the offender's apprehension. However, it may be the case that while the perpetrator actually committed a rape in 1985, it was

not confirmed among his previous crimes until after his apprehension for the homicides, which would mean that only the prior theft charge would appear in his arrest record at the time of the sexual homicide investigation. Because of cases like this, it is entirely possible that information about any offenses noted here as “red flags” may not be available to law enforcement at the time that they initially develop and research suspects.

Recommendations for Future Studies

While the current study used a broad coding scheme to evaluate sexual homicide offenders’ victims in terms of sex, race, and age category, others have recommended that future studies should separate offenders based on victim type. Chan and Heide (2009) pointed out that differences exist between offenders who choose child victims rather than adults, for example, and that conclusions based on studies that did not distinguish between these offenders were limited in how well they could be generalized to larger populations. Indeed, the current study found that victim demographic variables significantly contributed to predictive models, which lends support to the notion that sexual homicide perpetrators who differ with regard to preferred victim types may differ from one another in other ways.

Previous research on sexual murderers has employed a number of various comparison groups that may be of limited practical utility. The current study compared two groups of offenders who were driven by sexual compulsion to act, in order to examine whether differences were present between non-serial and serial perpetrators. Future research should use other comparison and control groups, in order to contribute to existing knowledge about how sexual murderers differ from other offender groups, such as serial murderers whose motivation is not sexual (i.e., contract murderers, spree killers). Chan and Heide (2009) have also recommended

the use of a “healthy” control group, in order to assess the extent to which aberrant sexual drives and behaviors seen in sexual murderers are also present in non-offender groups.

The current study’s use of data obtained from official records and from unofficial sources regarding sex murderers’ criminal and antisocial histories provided more comprehensive information than that found in prior research. It is recommended that further studies be done to investigate whether the large discrepancy in offense frequency found here between official and other sources also occurs in other samples. In addition, results of this research suggest that serial sexual homicide perpetrators are engaging in many more illegal acts over their criminal careers than are non-serial offenders, but are more successful at avoiding apprehension. Additional research is needed to examine some of the factors that may indicate higher levels of general functioning among serial sex murderers, such as higher employment status, longer criminal careers, and selecting victims from marginalized groups. It would be interesting to integrate the results of quantitative studies such as this one with qualitative data that could be obtained from case files or offender self-reports regarding their strategies to avoid arrest, and their level of forensic awareness.

While results here suggest that the perpetrators of sexual homicide are likely to have offense histories that include numerous types of crimes and antisocial acts, additional research is needed with regard to the level of specialization seen in these offenders’ backgrounds. In reviewing the information obtained from case files for the current study, researchers found that offenders often committed various offenses in between homicides. That is, they did not appear to specialize in a particular type of offense, nor did they restrict their antisocial behavior to homicide following the commission of their initial murder. Future empirical study of whether these perpetrators display periods of offense specialization would provide useful information

regarding whether sex murderers escalate and then continue to commit additional homicides, to the exclusion of other types of crimes.

Conclusions

The current study was conducted in order to contribute to the existing body of knowledge on sexually-motivated homicide. Results found here were consistent with those of previous studies regarding the victims and perpetrators of sexual murder. For example, most of the victims of the offenders in this sample, whether serial or non-serial, were adult females, and many had engaged in acts of prostitution or were members of marginalized populations. All of the offenders in the current study were male, and many were White and chose victims of the same racial background as themselves. However, these results reflect greater diversity in offender and victim characteristics than that noted in prior studies, and offered support for the work of scholars and researchers who have discussed the existence of elderly sexual homicide victims (Safarik et al., 2002), Black serial sexual murderers (Walsh, 2005), and greater variability in sexual murderers and victims than what is commonly portrayed in popular media (Ebrite, 2005).

A great deal of information regarding the criminal and antisocial histories of serial and non-serial sexual homicide offenders was available for analysis, given the relatively large sample size and amount of data included in archival case materials from official records and various other sources. The fact that this study was not limited solely to official arrest and conviction records permitted the collection and analysis of more comprehensive accounts of prior offense histories than those found in much of the existing research on this topic. Results indicated that huge numbers of crimes had been committed by sexual homicide perpetrators, and that these numbers increased significantly with the inclusion of information regarding antisocial behaviors.

In addition, results suggested that sexually-motivated murderers do not tend to specialize in a particular type of offending, and do not limit their illegal activity to homicide, sexual offenses, or violent crimes. A subset of the offenders in the serial and non-serial groups was found to have no prior criminal record, which is consistent with the extant literature.

Comparative analyses were notable for the use of two groups comprised of sexual homicide perpetrators. It appears from these results that serial sexual homicide perpetrators are more likely than non-serial ones to have engaged in higher numbers of certain types of sexual and violent offending, in addition to significant differences between offender groups in terms of their rates of committing sexual homicide. Several variables were found to be present more often, or to a greater degree, in the serial group than in the non-serial group. Taken together, these characteristics, such as higher employment status, longer criminal careers, and greater time periods between the commission of the final sexual homicide and the final apprehension, suggest that perhaps serial sex murderers tend to be more functional in many ways than non-serial offenders. It is recommended that future research on the perpetrators of sexually-motivated homicide build upon the findings of this study and attempt to assess whether serial offenders are in fact more functional in general than non-serial ones.

Serial sexual murderers appeared to engage in more violent and sexual acts over their histories than did non-serial sexual homicide offenders. Results suggested that those in the serial group might be more sexually compulsive than non-serial perpetrators, and thus more likely to act out on their aberrant sexual fantasies and desires. In addition, there are many more sexually-motivated crimes being committed by these offenders than what is commonly documented in arrest and conviction records. The number of serious violent and sexual offenses attributed to these offenders is believed to exact an incredibly high toll on society in terms of public fear,

various financial costs, and the intangible cost associated with the perpetuation of myths about sexual homicide and those responsible for it.

Analyses of temporal patterns indicated that, while most offenders do not act out in regular cycles, some patterns are observable in the criminal and antisocial backgrounds of sexual homicide perpetrators. However, careful review of the actual data suggests that the temporal patterns that were found among the offenders in this sample tend to be idiosyncratic and unique to a particular offender. For this reason, among others, even if a temporal pattern exists in an offender's background, it may not be obvious to investigators or researchers because it is dependent on factors specific to the perpetrator. Future analyses will attempt to investigate whether other factors can be found in these data that would account for the observed timing of sexual homicide perpetrators' criminal and antisocial acts.

Finally, on the basis of the observed differences between the two offender groups, several predictive models were proposed to aid in classifying a particular sexual murder as being the work of a serial or non-serial perpetrator. Support was found for the use of offender and victim demographic information in conjunction with data obtained from official records and other sources regarding sex murderers' past antisocial behaviors. All four of the predictive models developed here through the use of logistic regression procedures were found to significantly discriminate between the serial and non-serial offender groups, with some models correctly classifying nearly 90% of the overall sample. Future research should endeavor to replicate these results using the same sets of predictor variables with different samples of sexual murderers.

The potential impact of the current study spans multiple disciplines. Researchers may wish to incorporate many of this study's data collection and coding procedures into future empirical work on sexual homicide. One recommendation for future studies is to make greater

use of collateral data sources in addition to official records when gathering information about the criminal and antisocial histories of sexual homicide offenders. Researchers may also build upon these findings and suggestions for further studies that utilize a variety of offender samples and comparison groups.

There are numerous implications of the results of this research for law enforcement agencies in general, and for homicide investigators in particular. Among these are several recommendations for future investigative strategies upon encountering a case of sexually-motivated homicide. These include devoting increased resources to crimes perpetrated against prostitutes and individuals from other marginalized groups, and gathering detailed information from family members, employers, and other collateral sources about past antisocial behaviors that may not appear in a suspect's official arrest and conviction record. Results of the comparative analyses conducted in the current study may be used to assist in investigators' decision-making about inclusion or exclusion of potential suspects. Allocating resources to the pursuit of various investigative leads and choosing whether to eliminate a suspect are complex decisions that are based on multiple factors. However, increased awareness of historical variables that appear helpful in distinguishing serial from non-serial sexual homicide offenders may assist in identifying cases of serial sexual murder and narrowing the suspect pool.

Results of the analyses performed here regarding the number and nature of prior antisocial acts may be of use to clinical practitioners in conducting risk assessments of those suspected to be at increased likelihood of committing sexualized violence. In addition, increased awareness of the predictive factors and models examined in this study may help to inform the decision-making process of clinicians called upon to assess the risk of recidivism posed by offenders who are being considered for parole, probation, or other alternatives to incarceration.

These results may also inform the development and implementation of early intervention programs, which have been recommended to reduce the risk of future violent behavior (Ressler et al., 1988). The presence of a number of problematic behaviors in youth or adolescence, especially those that have been found by this and other empirical studies to be prevalent in the histories of sexual murderers, may serve as early warning signs for clinical practitioners who are involved in the assessment and treatment of at-risk youth. Early intervention in the lives of those who appear exceptionally prone to the commission of future sexualized violence is of critical importance as a means of protecting the public from frightening and costly acts such as those committed by the serial and non-serial sexual homicide offenders who were studied here.

Appendix A

Overall Frequencies of Officially Documented Crimes, Independent of Sexual Homicide

Offense Type	N	Range	Mean	sd
Homicide	8	0-2	.06	.26
Attempted Homicide	33	0-6	.24	.76
Rape	85	0-7	.61	1.32
Attempted Rape	20	0-3	.14	.49
Sexual Assault	70	0-10	.50	1.29
Aggravated Assault	97	0-6	.70	1.33
Simple Assault	55	0-10	.40	1.14
Arson	9	0-4	.06	.39
Robbery	63	0-13	.45	1.53
Burglary	133	0-18	.96	2.16
Theft/Larceny	116	0-9	.83	1.55
Auto Theft	25	0-3	.18	.57
Peeping	6	0-2	.04	.24
Exhibitionism	15	0-8	.11	.71
Kidnapping	53	0-11	.38	1.23
Domestic Violence	46	0-6	.33	.91
Stalking	1	0-1	.01	.09
Animal Cruelty	2	0-1	.01	.12
Substance Abuse	80	0-8	.58	1.26
Crime Against Children	55	0-4	.40	.97
Weapons Crime	45	0-6	.32	.80
Sex Offense, Other	28	0-5	.20	.64
Fraud/Forgery	23	0-5	.17	.56
Threatening	24	0-3	.17	.48
Property Crime	57	0-6	.41	1.01
Disorderly Conduct/Resisting Arrest	34	0-3	.24	.64
Escape	47	0-20	.34	1.82
Traffic Violation	49	0-8	.35	.95
DUI	18	0-3	.13	.41
Parole/Probation Violation	57	0-17	.41	1.66
Other	90	0-9	.65	1.43

Appendix B

Results of Comparative Analyses of All Offense Type Variables between Groups

<u>Offense Type</u>	<u>Mean Rank by Group</u>		<u>U</u>	<u>p</u>
	<u>NS</u>	<u>S</u>		
Rape 1	65.82	78.45	1750.5	.064
Rape 2	66.49	77.09	1813.0	.123
Rape 3	64.01	82.11	1582.0	.002*
Rape 4	65.13	79.84	1686.5	.014*
Homicide 3 ^a	68.73	72.58	2020.5	.161
Homicide 4 ^a	64.06	82.01	1586.5	>.001*
Aggravated Assault 1	63.63	82.88	1546.5	.002*
Aggravated Assault 2	62.68	84.79	1458.5	.001*
Aggravated Assault 3	64.10	81.93	1590.0	.003*
Aggravated Assault 4	63.62	82.90	1545.5	.002*
Arson 1	70.17	69.65	2123.0	.873
Arson 2	69.87	70.26	2127.0	.912
Arson 3	70.71	68.57	2073.0	.401
Arson 4	70.18	69.63	2122.0	.841
Robbery 1	67.05	75.97	1864.5	.099
Robbery 2	66.51	77.07	1814.0	.056
Robbery 3	68.24	73.55	1975.5	.266
Robbery 4	67.78	74.48	1933.0	.175
Burglary 1	67.76	74.53	1930.5	.297
Burglary 2	67.55	74.95	1911.5	.260
Burglary 3	67.58	74.89	1914.0	.242
Burglary 4	67.29	75.48	1887.0	.200
Theft/Larceny 1	69.37	71.28	2080.0	.773
Theft/Larceny 2	70.61	68.76	2082.0	.783
Theft/Larceny 3	67.25	75.57	1883.0	.173
Theft/Larceny 4	68.48	73.08	1997.5	.462
Auto Theft 1	70.32	69.36	2109.5	.846
Auto Theft 2	69.84	70.32	2124.5	.925
Auto Theft 3 ^b	70.18	69.64	2122.5	.894
Sexual Assault 1	62.43	85.30	1435.0	.001*
Sexual Assault 2	61.66	86.87	1363.0	>.001*
Sexual Assault 3	65.41	79.27	1712.5	.010*
Sexual Assault 4	64.62	80.88	1638.5	.004*
Voyeurism/Peeping 1	68.52	73.00	2001.0	.079
Voyeurism/Peeping 2	68.75	72.52	2023.0	.349
Voyeurism/Peeping 3	68.27	73.50	1978.0	.025*
Voyeurism/Peeping 4	68.74	72.54	2022.0	.344

1 – includes official Crimes and sexual homicides

2 – includes Crimes, Antisocial Acts, and sexual homicides

3 – includes Crimes, excludes sexual homicides

4 – includes Crimes and Antisocial Acts, excludes sexual homicides

^a No instances occurred in conjunction with sexual homicide

^b All instances were officially-documented as Crimes

* $p < .05$

Results of Comparative Analyses of All Offense Type Variables between Groups (continued)

<u>Offense Type</u>	<u>Mean Rank by Group</u>		<u>U</u>	<u>p</u>
	<u>NS</u>	<u>S</u>		
Exhibitionism/Exposure 1	68.52	73.00	2001.0	.147
Exhibitionism/Exposure 2	67.31	75.45	1888.5	.026*
Exhibitionism/Exposure 3	69.01	72.00	2047.0	.307
Exhibitionism/Exposure 4	67.80	74.46	1934.0	.059
Abuse of Corpse 1	61.89	86.40	1384.5	>.001*
Abuse of Corpse 2	61.20	87.78	1321.0	>.001*
Abuse of Corpse 3 ^b	69.50	71.01	2092.5	.155
Simple Assault 1 ^a	70.41	69.16	2100.5	.805
Simple Assault 2 ^a	70.69	68.61	2075.0	.697
Kidnapping 1	62.74	84.67	1464.0	>.001*
Kidnapping 2	62.76	84.64	1465.5	>.001*
Kidnapping 3	64.21	81.71	1600.5	>.001*
Kidnapping 4	64.15	81.83	1595.0	>.001*
Domestic Violence 1	70.89	68.21	2056.5	.581
Domestic Violence 2	73.58	62.76	1806.0	.066
Domestic Violence 3	71.42	67.13	2007.0	.369
Domestic Violence 4	74.12	61.66	1755.5	.033*
Stalking 1	69.00	72.02	2046.0	.044*
Stalking 2	68.74	72.54	2022.0	.071
Stalking 3	69.50	71.01	2092.5	.155
Stalking 4	69.25	71.52	2069.0	.213
Animal Cruelty 1	69.25	71.52	2069.0	.213
Animal Cruelty 2	67.51	75.04	1907.0	.026*
Animal Cruelty 3	69.00	72.02	2046.0	.044*
Animal Cruelty 4	67.26	75.53	1884.5	.011*
Attempted Homicide 1 ^{a, b}	63.88	82.38	1569.5	>.001*
Disorderly/Resisting 1 ^a	71.74	66.48	1977.0	.253
Disorderly/Resisting 2 ^a	71.75	66.46	1976.0	.250
Fraud/Forgery 1 ^a	69.85	70.29	2125.5	.911
Fraud/Forgery 2 ^a	70.32	69.36	2109.5	.816
Escape 1 ^{a, b}	69.09	71.85	2054.0	.053
Threatening 1 ^a	68.07	73.90	1959.5	.178
Threatening 2 ^a	69.40	71.22	2083.0	.726
Traffic Violations 1 ^a	70.46	69.07	2096.0	.786
Traffic Violations 2 ^a	70.10	69.79	2129.5	.953
Drug-related Offenses 1	68.66	72.72	2014.0	.489
Drug-related Offenses 2	71.77	66.42	1974.5	.432
Drug-related Offenses 3	69.27	71.47	2071.5	.707
Drug-related Offenses 4	73.08	63.78	1853.0	.167

1 – includes official Crimes and sexual homicides

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4 – includes Crimes and Antisocial Acts, excludes sexual homicides

^a No instances occurred in conjunction with sexual homicide

^b All instances were officially-documented as Crimes

* $p < .05$

Results of Comparative Analyses of All Offense Type Variables between Groups (continued)

<u>Offense Type</u>	<u>Mean Rank by Group</u>		<u>U</u>	<u>p</u>
	<u>NS</u>	<u>S</u>		
Crimes against Children 1	66.31	77.46	1796.0	.066
Crimes against Children 2	67.20	75.65	1879.0	.171
Crimes against Children 3	68.58	72.88	2006.5	.396
Crimes against Children 4	68.90	72.22	2037.0	.563
Property Crimes 1 ^a	70.28	69.42	2112.5	.869
Property Crimes 2 ^a	69.58	70.86	2099.5	.812
Weapons Offenses 1	68.62	72.78	2011.0	.441
Weapons Offenses 2	68.22	73.61	1973.0	.323
Weapons Offenses 3	68.15	73.75	1966.5	.281
Weapons Offenses 4	67.82	74.40	1936.5	.217
Other Sex Offenses 1	65.91	78.26	1759.0	.005*
Other Sex Offenses 2	66.88	76.30	1849.0	.060
Other Sex Offenses 3	66.18	77.73	1783.5	.006*
Other Sex Offenses 4	67.13	75.79	1872.5	.075
DUI/DWI 1 ^{a, b}	70.68	68.63	2076.0	.600
Attempted Rape 1	67.83	74.38	1937.5	.094
Attempted Rape 2	68.30	73.43	1981.0	.213
Attempted Rape 3	67.59	74.87	1915.0	.055
Attempted Rape 4	68.06	73.92	1958.5	.144
Parole/Probation Violations 1 ^{a, b}	71.01	67.96	2045.5	.507
Miscellaneous Offenses 1 ^a	71.77	66.41	1974.0	.358
Miscellaneous Offenses 2 ^a	70.40	69.20	2102.0	.847

1 – includes official Crimes and sexual homicides

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4 – includes Crimes and Antisocial Acts, excludes sexual homicides

^a No instances occurred in conjunction with sexual homicide

^b All instances were officially-documented as Crimes

* $p < .05$

Appendix C

Variables Entered for Each Proposed Predictive Model

Variables Included in Model 1

Victim race*
 Victim sex*
 Victim age category*
 All victims were prostitutes*

Variables Included in Model 2

Offender race
 Offender employment category
 Former military service*
 Victim race*
 Victim sex*
 Victim age category*
 All victims were prostitutes*
 Offender/victim of same race*

Variables Included in Model 3

Offender race
 Offender employment category
 Former military service
 Victim race*
 Victim sex*
 Victim age category*
 All victims were prostitutes*
 Offender/victim of same race*
 Past criminal record
 Past juvenile criminal record

Offense variables^{1, 2}
 Rape *
 Aggravated assault
 Robbery*
 Burglary
 Theft/Larceny
 Auto theft
 Sex assault
 Simple assault
 Kidnapping
 Domestic violence
 Attempted homicide*
 Disorderly conduct/Resisting

Fraud/Forgery
 Escape
 Threatening
 Traffic violation
 Drug-related offense
 Offenses against children
 Property offense
 Weapons offense
 Sex Offenses, Other
 DUI/DWI
 Attempted rape
 Parole/Probation violation
 Other/Miscellaneous offenses

Variables Included in Model 4

Offender race
 Offender employment category
 Former military service
 Victim race*
 Victim sex*
 Victim age category*
 All victims were prostitutes*
 Offender/victim of same race*
 Past criminal record
 Past juvenile criminal record

Offense variables^{1, 3}
 Non-series homicide
 Rape
 Aggravated assault*
 Robbery*
 Burglary
 Theft/Larceny
 Auto Theft
 Sex assault
 Voyeurism/Peeping*
 Indecent exposure*
 Simple assault
 Kidnapping*
 Domestic violence*
 Attempted homicide*

Disorderly conduct/Resisting
 Fraud/Forgery
 Escape
 Threatening
 Traffic violation
 Drug-related offense
 Offenses against children
 Property offense
 Weapons offense*
 Sex Offenses, Other
 DUI/DWI
 Attempted rape
 Parole/Probation violation
 Other/Miscellaneous offenses*

*remained in model after regression

1 Excluding sexual homicide and co-occurring offenses

2 Officially-documented crimes only

3 Includes crimes and antisocial acts

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