

Elderly Female Serial Sexual Homicide

A Limited Empirical Test
of Criminal Investigative Analysis

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The purpose of criminal investigative analysis is to assist law enforcement in identifying and apprehending violent offenders by identifying important suspect and crime scene characteristics. The genesis of criminal investigative analysis grew out of micro-level reviews of unusually violent crime cases. Although the descriptive terminology used to identify the process has changed over the years, the process of assessing violent criminal behavior has not. Lack of agreement as to what constitutes criminal investigative analysis has also led some to view the process as more art than science. In an effort to clarify some of these issues, an analysis of cases of serial sexual homicides of elderly women is conducted. Although the sexual homicide of elderly women represents a small percentage of overall homicides in the United States, the authors provide empirical evidence supporting the use of criminal investigative analysis in solving these unusual cases. The FBI regularly consults on various types of violent homicide cases using this methodology and valuable investigative information often is yielded in other cases as well.

Criminal investigative analysis, or criminal profiling as it is popularly known, is a tool commonly employed by law enforcement in the investigation of serial violent crimes (Burgess, Hartman, Ressler,

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Douglas, & McCormack, 1986; Douglas & Burgess, 1986; O'Toole, 1999). In contrast, general crime analysis involves identifying trends and patterns in aggregate crime data (Gottlieb, Arenberg, & Singh, 1994). Criminal investigative analysis focuses on individual-level case data, attempts to identify patterns and trends in connected cases, examines the behavior exhibited within each crime scene, and facilitates the identification of "the major personality and behavioral characteristics of the offender" (Douglas, Burgess, Burgess, & Ressler, 1992, p. 310). The criminal investigative analysis process seeks to narrow the focus of investigations by generating leads for law enforcement relative to the general type of person that may have committed the crime. In this respect, the underlying criminological theory behind the criminal investigative analysis approach seems to lie, at least partially, in Routine Activities Theory (Rossmo, 1999; see also Cohen & Felson, 1979). That is, this approach to investigating violent crime focuses on the behavioral activities that may have brought a set of conditions, a particular victim, and the offender into the same time, space, and circumstances that resulted in the death of the victim. Application of this process commonly yields behavioral assessments, investigative and prosecutorial strategies, search warrant recommendations, and interview strategies for law enforcement use. However, offender profiles are often equated with criminal investigative analysis. Though necessarily oversimplifying the process of profiling, this brief description provides a general sketch of the criminal investigative analysis methodology.

This article examines some of the aspects of criminal investigative analysis evident in elderly female sexual homicide cases that are believed to have been perpetrated by serial offenders. The goal here is to examine, in a limited manner, the degree of empirical validity that criminal investigative analysis brings to the investigation and apprehension of offenders that perpetrate these or similar crimes.

Criminal Investigative Analysis

Criminal investigative analysis, or profiling, has often been portrayed in the media through such feature films as *Silence of the Lambs* or the television shows *Millennium*, *The X-Files*, and *Profiler*. Each of these media portrayals, though adopting the general ap-

proach embodied by criminal investigative analysis, has employed an artistic license in depicting its application. In fact, it is a lack of general agreement as to what constitutes criminal investigative analysis that has led critics of this approach to conclude that little or no empirical evidence exists to demonstrate its effectiveness. Illustrating this controversy, Douglas, Ressler, Burgess, and Hartman (1986) note that

Rossi (1982) describes profiling as a collection of leads. Geberth (1981) defines the process as an educated attempt to provide specific information about a certain type of suspect. And Vorpagel (1982) offers the view of profiling as a biographical sketch of behavioral patterns, trends, and tendencies. (p. 405)

However, Douglas et al. (1986) continue by describing the process used by the Federal Bureau of Investigation (FBI) profilers and conclude that criminal investigative analysis is "a technique for identifying the major personality and behavioral characteristics of an individual based upon an analysis of the crimes he or she has committed" (p. 405). This behavioral approach to offense analysis, rooted in a law enforcement perspective, is the conception of criminal investigative analysis that is used here.

The application of this process involves a comprehensive review of the behavioral and psychological details of an unsolved violent crime through analysis of the offender's physical, sexual, and, in some cases, verbal behavior with the victim. This also includes a comprehensive study of the victim, a thorough evaluation of the crime scene, and an in-depth investigation of the nature and scope of the interactions between the victim and the offender (O'Toole, 1999). Whatever its exact definition, it is not uncommon for criminal investigative analysis to be employed by law enforcement as a tool in investigating particularly violent, difficult, rare, or unusual crimes. Typically, these cases involve sexually motivated homicides or excessively violent assaults (Canter & Heritage, 1990; Ressler, Burgess, & Douglas, 1988), rapes (Hazelwood & Warren, 1990; Warren et al., 1999), or arsons (Kocsis, Irwin, & Hayes, 1998; Sapp, Huff, Gary, & Icove, 1995) where the suspect is believed to be a serial offender.

Based on the principles of the criminal investigative analysis process, cases of serial sexual homicide of elderly females are examined in this article. Analysis is directed toward determining

whether the basic tenets of criminal investigative analysis can be of value in identifying important suspect characteristics in cases of elderly serial sexual homicide. Successful homicide investigations rely on the ability of law enforcement to determine factors that increase the likelihood of identifying offenders. Before examining the available elderly sexual homicide data, however, an appropriate understanding of the general scope and nature of both homicide and homicides involving elderly females is necessary to insure a fuller understanding of the characteristics of these difficult and unusual cases.

Elderly Female Homicide

Homicide of elderly females is a rare phenomenon. According to the FBI, approximately 16,914 homicides were reported to the police in 1998 (FBI, 1999). Of these homicide victims, approximately 855 were determined to be elderly (60 years of age or older) and less than half of this total (414) were identified as female. Therefore, elderly female homicides constituted about 2% to 3% of all homicides in 1998. According to annual editions of the FBI's *Uniform Crime Reports*, this percentage has been fairly stable over the past decade.

Complicating this picture is uncertainty relative to the number of sexual homicides that occur each year. There are many difficulties in obtaining reliable statistics relative to the number of sexual homicides.¹ One of the most problematic of these difficulties involves the identification of the offense as a homicide without note of the subordinate offense of rape and/or sexual assault (Brownmiller, 1975).² Other difficulties include lack of proper investigation to identify such behavior, poor communication between investigators and other personnel relative to the sexual nature of the offense, and classification errors in official data entries (see Burgess et al., 1986). Although official statistics are elusive, one fact is inescapable—demographic data show that an increasing proportion of the baby boom generation will be aging into the elderly population in the coming years. Coupled with the fact that people are living longer, this suggests that the risk of violent victimization to elderly individuals is likely to increase. In addition, nearly 75% of people older than 65 are women (U.S. Bureau of the Census, 1999). Taken as a whole, this information

suggests that examination of any factors that may assist law enforcement in rapidly identifying and apprehending responsible offenders and protecting potential elderly victims has merit. Additionally, because cases of this type are uncommon, law enforcement must be cognizant of and use the most effective investigative tactics and strategies available. The general problem of crime against the elderly has been extensively addressed in the literature, including research specifically addressing violent offenses (Faggiani & Owens, 1999; Fox & Levin, 1991; Lent & Harpold, 1988; Nelson & Huff-Corzine, 1998).

From a practitioner's perspective, the criminal investigative analysis process as applied to elderly female sexual homicides has relied heavily on experiential data as reported by the FBI and FBI-trained profilers.³ Veteran profilers have been shown to provide useful investigative insights, particularly in violent serial cases. Additionally, there appears to be a clear consensus as to what their collective training and experience has revealed relative to sexual homicides of elderly females. In particular, two axioms are evident. First, the age of the victim and offender appear to be negatively correlated. That is, elderly victims are most often killed by younger offenders. The second axiom, and perhaps most curious, is that the intra-racial nature of violent crime seems to be conditional. That is, the general intra-racial character of violent criminal offending appears, to profilers, to be dependent on specific case factors rather than on the general expectation that an offender is of similar race. To further investigate these questions, as well as for the reasons stated earlier, we chose to examine the application of criminal investigative analysis to cases of elderly female serial sexual homicide.

DATA AND METHODS

Data were collected by the FBI's National Center for the Analysis of Violent Crime (NCAVC) through various sources. Cases identified included cases from the FBI's Violent Criminal Apprehension Program (VICAP), cases brought forward by law enforcement through their participation in the FBI's National Academy Training Program, and cases identified through the operational activities of the FBI's NCAVC. Thirty-three solved cases involving a

female, 60 years of age or older, who was determined to be a victim of a serial sexual homicide. The offenders in these cases had all been arrested and convicted and were responsible for at least two sexual homicides of elderly females. The resulting data relative to these cases serve as the basis for this article. Clearly, for both statistical and methodological reasons, it would be impossible to fully explore all the aspects of criminal investigative analysis with the relatively small number of cases available for analysis. As noted earlier, a full discussion of criminal investigative analysis is far too large a task for this effort.⁴

For the purposes of this article, we have narrowed our focus to four dependent variables: race of offender, age of offender, relationship of offender to victim, and distance of offender's residence (in city blocks) from that of the victim. We have not included any psychological variables or any of the many other variables that may be drawn on in a profiling effort. Each dependent variable is examined separately using logistic regression models. Particular attention is given to the degree of probability to which each dependent variable can be adequately explained by a set of independent variables (crime scene, victim characteristics, and specific offender behavioral attributes). The independent variables selected represent information that is routinely available to the law enforcement investigators tasked with solving such cases.

RESULTS

Initial analysis involved examining the descriptive statistical properties of all candidate variables to be included in the analysis. These results are shown in Table 1 and suggest that the average offender in these cases is Black, the mean offender age category is between 20 and 35 years, and the victim (on average) is not likely to have known the offender. These results are consistent with other descriptive studies that have examined elderly violent victimization (Faggiani & Owens, 1999) and provide a baseline for judging the degree to which various independent variables increase our likelihood of accurately determining the characteristics of offenders in these cases (Nelson & Huff-Corzine, 1998).

Following Warren et al. (1999), logistic regression models were employed to examine the performance of various independent

TABLE 1
Descriptive Statistics for Dependent and Independent Variables

<i>Variable</i>	M	SD
Offender race	.33	.48
Offender age	.79	.42
Offender knew victim	.41	.50
Offender distance	.58	.50
Time/effort to undress	.20	1.15
Time of day	.19	.40
Cause of death	2.12	.96
Neighborhood composition	.61	.50
Time/effort to cause death	4.69	1.31
Postmortem	.44	.50

NOTE: Scaling for the above variables is as follows: offender race: 0 = Black, 1 = White; offender age: 0 = not between 20-35 years old, 1 = between 20-35 years old (our expected age range); offender distance (from victim's residence): 0 = 6 blocks or less, 1 = more than 6 blocks; offender knew victim: 0 = offender did not know victim, 1 = offender did know victim; time/effort to undress (amount of time and effort exerted): 1 = clothing adjusted (pushed up or pulled down), 2 = torn/cut for access, 3 = partial removal, 4 = complete or near complete removal, 5 = 1, 3, or 4 and then redressed; cause of death (by weapon/method of kill): 1 = smothering/airway occlusion/torso compression, 2 = strangulation (manual or ligature), 3 = blunt force trauma, 4 = stab/cut, 5 = gunshot; neighborhood composition (neighborhood 80% or greater White): 0 = 79% or less White, 1 = 80% or more White; time/effort causing death (amount of time and effort exerted to cause death): 1 = gunshot wound, 2 = cut/stab, 3 = blunt force, 4 = smothering/airway occlusion/torso compression, 5 = strangulation, 6 = two causes, 7 = three or more causes; postmortem activity: 0 = no postmortem activity, 1 = postmortem activity; and time of day: 0 = 8:01 p.m. to 8:00 a.m., 1 = 8:01 a.m. to 8:00 p.m.

variables in predicting the four offender characteristics shown in Table 2 (offender race, offender age, offender-victim relationship, and the distance of the offender's residence from the crime scene). The percentage correctly classified in these models represents the degree of accuracy that was obtained using the indicated independent variables. Our results are encouraging, with each model resulting in about 80% to 85% classification accuracy. Discussion of each model is also informative. In discussing these results, particular attention should be given to the improvement in prediction accuracy that results from inclusion of crime scene or victim attributes as explanatory variables. Using this approach, the model classification accuracy and performance of various independent variables for offender race are reported at the top of Table 2.

Our results demonstrate that by considering the independent variables of time and effort to undress the victim and time of day of the crime, predictions relative to an offender's race increase from .73 (not reported in the table) to .88. This also suggests that

TABLE 2
Logistical Regression Results for Dependent Variables of Interest

<i>Variable</i>	<i>B</i>	<i>Odds Ratio</i>
Offender race		
Constant	-4.76	
Time/effort to undress*	1.12	3.07
Time of day*	2.75	15.66
$\chi^2 = 8.50^*$	88.46% correctly classified	
Offender age		
Constant	3.92	
Cause of death*	-1.10	0.33
$\chi^2 = 3.43^*$	84.85% correctly classified	
Offender knew victim		
Constant	3.40	
Time/effort to cause death*	-1.05	0.35
Time of day*	2.63	13.83
$\chi^2 = 11.80^{**}$	82.14% correctly classified	
Offender distance		
Constant	-1.21	
Neighborhood composition**	2.81	16.65
$\chi^2 = 11.90^{**}$	80.65% correctly classified	

NOTE: For variable definitions, see Table 1.

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

determination of the time of day that the crime was committed increases the odds by 15.66 of correctly predicting offender race. Although other candidate variables and diagnostics (including autocorrelation, specification errors, multicollinearity, etc.) were examined, this model (and the subsequent models shown in Table 2) was found to be adequate for predicting offender race. A similar analysis of offender age improved classification errors from .79 to .85. In this analysis, the independent variable of cause of death was found to have a significant influence on predicting the offender's age category.

An analysis of the relationship of the offender to the victim, in contrast, revealed stronger results. The increase in classification accuracy, compared to a constant-only model, was substantial (.61 to .82, or 34%). The variables of time and effort to cause death and the presence of postmortem activity contribute significantly to this increase in accuracy. Postmortem activity was found to have the most impact on increasing the odds of accurately predicting any relationship between the victim and offender at 13.83. Though these results are more significant than some of the others reported

here, perhaps even greater strength would be revealed if not for a persistent difficulty associated with defining relationship. Relationship classifications of stranger and acquaintance are particularly problematic (see Riedel & Rinehart, 1996). Stranger classifications are far more common in national data sets like the Uniform Crime Reports (UCR) and the National Criminal Victimization Survey (NCVS), but it seems that a gray area may exist between the classification of a stranger when compared to an acquaintance. Many strangers may, in fact, be marginal acquaintances of the victim. This acquaintance may have arisen out of a former service performed by the offender (plumbing, gardening, cable, household services, etc.), or may result from common routine activities engaged in by both the victim and offender. Examples of this may include common bus stops, shopping areas, or other commonalities that brought them into at least visual contact and may have made them acquaintances by sight but apparent strangers to each other and to others. Therefore, although stranger classifications were common in this data and are often found in many data sets relative to crimes of violence, our experience in working with such data leads us to believe that this frequency may be overstated.

The same pattern is likely true within the context of the elderly serial crimes examined here. That is, few serial crimes of violence are determined to have occurred between complete strangers. This does not imply that a prior relationship existed between the offender and victim, but that the offender was aware of where the victim lived (prior to the crime) and that he perceived that she was alone and vulnerable. Rossmo (1999) describes the process of an offender who has cataloged the necessary victim information to return at some future date, as a mental card file compiled through mental mapping. For most offenders, this is not a conscious process. A majority of victims of serial homicides have either been identified and stalked for a period of time or become victims of convenience for the offender. These latter victims may have had some passing familiarity with the offender but no formal acquaintance. These offenders may more accurately be classified as apparent strangers.

Finally, the distance between the offender's residence and that of the victim was examined and an interesting result was found. The accuracy in predicting the distance of the offender's residence

from that of the victim increased from .58 to .80, or about 38%, by using the single measure of neighborhood composition. This suggests that when investigators are able to determine the racial composition of the neighborhood to be homogeneous, the probability that the offender's residence is in close proximity to that of the victim increases significantly. This result is not surprising because the racial composition of communities tends to be reflected in residential patterns. Offending patterns appear to be no different. Consistent with experiential data, this study found intra-racial offending to be more likely in homogenous communities. Conversely, inter-racial offending of Blacks against Whites was found to be more likely in heterogeneous communities. White against Black offending was found to be nonexistent in heterogeneous communities.

DISCUSSION AND CONCLUSION

This limited analysis of the application of criminal investigative analysis to serial sexual homicide of elderly women has revealed several points that merit further discussion. First, we contend that criminal investigative analysis is not simply impressionistic. It is based on the practical and sound analysis of investigative analysts. These analysts devote their experience and training to assisting law enforcement in solving some of the most horrific crimes of our time. Second, we have shown that empirical support can be illustrated for such profiling efforts. Although this study was limited to only some of the concepts of profiling and their application to serial sexual homicide of elderly females, it is encouraging that empirical support for criminal investigative techniques was evident in this set of data. Other data collection efforts and other analyses may yield different results. Nonetheless, this effort shows specific support for the principles of criminal investigative analysis as applied to this specific type of crime.

In particular, elderly female serial sexual homicides may be perpetrated by offenders of dissimilar race for White victims. In fact, this was shown to be true, as 82% of the Black offenders in this study victimized White females. Findings relative to Black victims illustrate an intra-racial offending pattern. This contrasts

with both experiential information and official UCR data that show general serial sexual homicides and overall homicide to involve intra-racial victimization (FBI, 1999). Turning to the hypothesized age differences, the majority of offenders were found to be significantly younger (ages 20 to 35) than their elderly victims. Additionally, the probability that these offenders repeatedly came in physical contact with elderly women whom they subsequently raped and murdered in the course of other intended criminal activity (e.g., burglary or robbery) seems highly improbable. Additional investigative information from these cases supports this contention. When the theft of items was noted, the offender's search for those items usually occurred subsequent to the sexual assault and homicide. When offenders searched for property at the crime scene, these searches would best be described as cursory in nature. The items usually taken consisted of nominal amounts of cash and/or inexpensive jewelry. Any search commonly occurred in the immediate area surrounding the victim.

Additionally, there was an apparent lack of balance between the effort expended to sexually assault and murder the victim and the subsequent search for and theft of property. The theft of items from the victim was, in most cases, an afterthought for these offenders. This was further confirmed by both forensic examination of the crime scenes and admissions made by the offenders to uninvolved third parties and during any confessions. Given that the offenders in this data are responsible for more than a single occurrence of homicide-rape of elderly females, it seems unlikely that the modus operandi for burglary would involve the murder-rape of the occupant of the residence being burglarized.

Finally, the analysis of this rather narrowly focused article illustrates support for the use of criminal investigative analysis as a practical tool for assisting law enforcement in solving incidents of serial sexual homicide of elderly women. Generalization of this finding to other types of homicide, or even other types of crime, remains for further investigation. However, anecdotal information from law enforcement professionals and the consideration of this law enforcement tool by the academic community (see other articles in this issue) indicate that the criminal investigative analysis process is a significant aid in investigating homicides and may even be applicable to analyses of other serial criminal behavior.

NOTES

1. Sexual homicide is defined by Ressler, Burgess, and Douglas (1988) as the killing of a person in the context of power, sexuality, and brutality with evidence or observations that include a sexual nature. These include victim attire or lack of attire; exposure of the sexual parts of the victim's body; sexual positioning of the victim's body; insertion of foreign objects into the victim's body cavities; evidence of sexual intercourse (oral, vaginal, or anal); and evidence of substitute sexual activity, interest, or sadistic fantasy. (p. xiii)

2. This hierarchy rule of official reporting may be more common in historical Uniform Crime Reporting data than will be so in the future. The redesigned Uniform Crime Reporting Program known as the National Incident-Based Reporting System (NIBRS) suspends such rules and allows for full reporting of collateral offenses (see Chilton & Jarvis, 1999a, 1999b).

3. In the past, the Federal Bureau of Investigation (FBI) has sponsored an International Criminal Investigative Analysis Fellowship that, as part of its curriculum, provided training in the techniques of profiling.

4. This effort and the data employed here represent an excerpt from a more in-depth examination of elderly female sexual homicides that is currently being conducted by the FBI's National Center for the Analysis of Violent Crime.

REFERENCES

- Brownmiller, S. (1975). *Against our will: Men, women, and rape*. New York: Simon & Schuster.
- Burgess, A. W., Hartman, C. R., Ressler, R. K., Douglas, J. E., & McCormack, A. (1986). Sexual homicide: A motivational model. *Journal of Interpersonal Violence, 1*, 251-272.
- Canter, D., & Heritage, R. (1990). A multivariate model of sexual offense behavior: Developments in "offender profiling" I. *International Journal of Forensic Psychiatry, 1*, 185-212.
- Chilton, R., & Jarvis, J. (1999a). Using the National Incident-Based Reporting System (NIBRS) to test estimates of arrestee and offender characteristics. *Journal of Quantitative Criminology, 15*, 207-224.
- Chilton, R., & Jarvis, J. (1999b). Victims and offenders in two crime statistics programs: A comparison of the National Incident-Based Reporting System (NIBRS) and the National Crime Victimization Survey (NCVS). *Journal of Quantitative Criminology, 15*, 193-205.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review, 44*, 588-608.
- Douglas, J. E., & Burgess, A. W. (1986, December). Criminal profiling: A viable investigative tool against violent crime. *FBI Law Enforcement Bulletin, 55*, 9-13.
- Douglas, J. E., Burgess, A. W., Burgess, A. G., & Ressler, R. K. (1992). *Crime classification manual: A standard system for investigating and classifying violent crimes*. New York: Lexington.
- Douglas, J. E., Ressler, R. K., Burgess, A. W., & Hartman, C. R. (1986). Criminal profiling from crime scene analysis. *Behavioral Sciences & the Law, 4*, 401-421.
- Faggiani, D., & Owens, M. G. (1999). Robbery of older adults: A descriptive analysis using the National Incident-Based Reporting System. *Journal of the Justice Research and Statistics Association, 1*, 97-117.
- Federal Bureau of Investigation. (1999). *Crime in the United States: Uniform crime reports, 1998*. Washington, DC: Government Printing Office.

- Fox, J. A., & Levin, J. (1991). Homicide against the elderly: A research note. *Criminology*, 29, 317-327.
- Geberth, V. J. (1981, September). Psychological profiling. *Law and Order*, 29, 46-49.
- Gottlieb, S., Arenberg, S., & Singh, R. (1994). *Crime analysis: From first report to final arrest*. Montclair, CA: Alpha.
- Hazelwood, R., & Warren, J. (1990, September). The criminal behavior of the serial rapist. *FBI Law Enforcement Bulletin*, 59, 1-17.
- Kocsis, R., Irwin, H., & Hayes, A. (1998). Organized and disorganized criminal behavior syndromes in arsonists: A validation study of a psychological profiling concept. *Psychiatry, Psychology and Law*, 5, 117-131.
- Lent, C. J., & Harpold, J. (1988, July). Violent crime against the aging. *FBI Law Enforcement Bulletin*, 57, 11-19.
- Nelson, C., & Huff-Corzine, L. (1998). Strangers in the night: An application of the life-style-routine activities approach to elderly homicide victimization. *Homicide Studies*, 2, 130-159.
- O'Toole, M. E. (1999, February). Criminal profiling: The FBI uses criminal investigative analysis to solve crimes. *Corrections Magazine*, 61, 44.
- Ressler, R. K., Burgess, A. W., & Douglas, J. E. (1988). *Sexual homicide: Patterns and motives*. Lexington, MA: Lexington.
- Riedel, M., & Rinehart, T. A. (1996). Murder clearances and missing data. *Journal of Crime and Justice*, 19, 83-102.
- Rossi, D. (1982, January). Crime scene behavioral analysis: Another tool for the law enforcement investigator. *Police Chief*, 49, 152-155.
- Rossmo, K. D. (1999). *Geographic profiling*. New York: CRC Press.
- Sapp, A., Huff, T., Gary, G., & Icove, D. (1995). *A motive based offender analysis of serial arsonists*. Emmitsburg, MD: U.S. Fire Administration.
- U.S. Bureau of the Census. (1999). *1999 census of population: Characteristics of the population*. Washington, DC: Government Printing Office.
- Vorpagel, R. E. (1982, January). Painting psychological profiles: Charlatanism, charisma, or a new science? *Police Chief*, 49, 156-159.
- Warren, J., Reboussin, R., Hazelwood, R. R., Gibbs, N. A., Trumbetta, S. L., & Cummings, A. (1999). A crime scene analysis and the escalation of violence in serial rape. *Forensic Science International*, 100, 37-56.

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