

ORIGINAL ARTICLE

Differentiating sexual violence: A comparison of sexual homicide and rape

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Abstract

The present study sought to identify consistent patterns in the actions of sexually violent offenders to determine whether sexual homicide and rape reflect different behavioral emphasis of a single thematic model of sexual assault. Crime scene behaviors of 74 (37 sexual homicides and 37 rapes) solved cases of sexual assaults were compared, and results of a multi-dimensional analysis revealed three thematic styles of interacting with the victim during a sexual assault (Exploit, Control, and Violent). Further analysis indicated that offender–victim interactions in sexual homicide and rape are predominantly distinguished by the degree of violence, such that behaviors associated with each type of offense were found to occur in two discrete areas along a single continuum. Findings are discussed in terms of producing a general framework for understanding sexual violent interactions.

Keywords: *Homicide, rape, sexual assault, violence, crime scene behaviors, profiling*

Introduction

Defining the issue

Much of the criminological literature conceptualizes sexual homicide and rape as two unrelated crimes, set apart by very different psychological mechanisms and motivations. This distinction has partly been influenced by legal classifications, despite such distinctions being based on interpretations of crime seriousness rather than any criminological or psychological measurement. As a consequence, research adhering to such legal distinctions accept a restricted perspective for examining patterns in offenders' behavior and may consequently overlook important similarities and differences across the various forms of sexual violence. In order to fully understand sexual violent crime, it is thus necessary to extend beyond a research perspective shaped by legal classifications and instead identify the actual psychological variations in crime scene actions that will differentiate between sexually violent offenses.

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This need motivated the current study to examine the actual behavioral differences and similarities between sexual homicide and rape. The analysis aimed to determine whether these two types of offending are specialized types of crime, or distinct types of crime within a greater pattern of criminal behavior and interpersonal style within sexual assault.

One approach to testing these possibilities is firstly to show that sexual homicide and rape may be conceptualized in terms of an overall single model of sexual violence. If such a framework is evident, it then needs to be shown that patterns in the crime scene behavior of sexual homicide and rape offenders relate to differing thematic emphasis within the same framework. This approach may usefully be considered *intra-domain*, as the differences between offense groups are considered within the domain of a single model of sexual assault, rather than through comparisons across the domains of separate models of sexual homicide and rape. The intra-domain approach has a distinct advantage over possible inter-domain comparisons as it enables the identification of differences across offenses without falling prey to the possibility that dissimilarities reflect either chance variations between models, or disparities in the purpose or design intentions behind each of the two models. Moreover, the use of a single combined domain allows for a holistic examination between sexual homicide and rape, with differences stated as overall trends or emphases within the single domain, rather than absolute item-to-item differences between domains.

These arguments suggest that an intra-domain approach may prove useful for examining similarities and differences between various forms of sexual assault. There are two stages to such an approach. The first is to identify the notable behaviors of sexual assault crime scenes, and to recognize the underlying pattern formed by these behaviors. The second is a comparison of these constituents in terms of their relative importance in sexual homicide and rape offenses.

Theories of rape

The majority of research on sexual violent crime has attempted to differentiate between different types of sexual offenses by considering variations in interpersonal aggressive strategies (e.g. Groth 1979). Although aggression represents a useful dynamic for differentiating the actions of sexually violent offenders, there remains the possibility that several further dimensions or aspects of the interaction will additionally distinguish between offenders. As Burgess, Hartman, and Ressler (1986) suggest, particular modes of interaction with the victim may represent a different motivation for behavior (in the case of Burgess et al., they focus on the importance of sexual fantasies), creating differentiable emphasis to the central focus of offenders actions during sexual homicide and rape offenses. Marshall (1989) proposes that an offender's desire for social contact or intimacy may be the primary motivation for sexual assaults. In contrast, Scully and Morolla (1983, 1985) emphasize that sexual assault may represent one in a number of criminal activities perpetrated by an offender. In their 1985 study, they interviewed 114 convicted incarcerated rapists, and put forward a theory which aimed to move away from the view that rapists are "sick" individuals with internal pathologies, to a theory based on rape as a learnt behavior. As they state, the application of psychopathology to rape "leads one to view sexual violence as a special type of crime in which the motivations are subconscious and uncontrollable rather than overt and deliberate as with other criminal behavior" (p. 253). Instead they propose a learning model, based on the functional use of rape in men's lives. Their analysis showed that there were a number of functions that rape took. These ranged from rape as a method of punishment or revenge, rape as a means of access to unwilling or

unavailable women, rape as a “bonus” committed during other criminal activity such as burglary or robbery, and rape as a recreational activity providing excitement and adventure. Many of these categories involved the offender asserting his dominance and power over his victims, and few of them saw any of their victims as people with rights and feelings of their own. They then go on to quote Black (1983) who “suggests that it is theoretically useful to ignore that crime is criminal in order to discover what such behavior has in common with other kinds of conduct” (p. 253). Again, the suggestion is that in order to fully understand sexual violence as a whole, we need to move away from rigid exclusive models based on particular subgroups. All of the above contrasting perspectives highlight the need to consider a range of potentially important dimensions, so that development of the general model exhaustively tests all facets of behavior in the domain of sexually violent attacks.

One of the more quoted approaches to classifying rape has been that by Groth (e.g. Groth 1979). Drawing on clinical experience with convicted offenders, Groth proposed that all cases of rape involved different levels of three components, namely, anger, power, and sexuality. Groth proposed that some sexual attacks are motivated by the need to express and discharge feelings of anger and aggression, while others are primarily driven by a desire to exploit or have power over the victim. Groth’s direct inclusion of sexuality as a component of an offender’s motivation implies that sexual gratification or desires may also have a direct impact on the occurrence of behavior during the attack. Unfortunately, Groth’s classification of rape suffers from those problems that are inherent in all early classifications of rape (see also Amir 1971). Specifically, Groth’s classification system did not relate the aspects of an offender’s motivation to the actual behavioral constituents of their actions at the time of the crime. The explicit identification of such variations in behavior is essential to any comparison between the crimes of sexual homicide and rape.

Knight, Warren, Reboussin, and Soley (1998) looked further at the issue of using models of sexual behavior for the purposes of validating systems of offender profiling, and further stressed the need to establish valid behavioral models for classifying different types of rapes. Their paper highlights the need for additional research to both integrate, and go beyond, models based on the experiences of mental health and law enforcement professionals. In particular they state that earlier models such as Groth’s are lacking as a taxonomic model. Specifically, they state that this typology “has only global classification criteria, provides no estimates of inter-rater reliability, and has been subjected to limited validity assessment” (p. 49). They further go on to say that their own Massachusetts Treatment Center (MTC) Rapist Typology Version 1 (MTC:R1) used the same four types as Groth, at its point of departure, and “was found to have serious reliability and validity problems that required substantial revision and restructuring” (p. 49), which they did for Version 3 (MTC:R3). This new version included both the four clinical types and a consideration of the behavioral components highlighted by Warren, Hazelwood, and Dietz’s (1996) FBI study on serial rape.

Other behavioral studies on rape, such as by Canter and Heritage (1990) who examined 66 stranger rapes to determine whether any meaningful pattern could be derived from the joint occurrence of crime scene behaviors, indicated that offenders’ actions as they occurred at the crime scene could be differentiated in terms of five different ways the offender interacted with the victim. In a larger study of 325 rape cases, Heritage (1992) reinterpreted the earlier framework arguing that actions at a crime scene were more reliably differentiated in terms of three different ways of interacting with the victim, namely, “criminal-opportunistic”, “sexual-intimacy”, and “aggression”. The sexual-intimate style of interac-

tion was characterized by cases in which offender's predominant motivation is for sexual fulfillment, while the aggressive offender employed excessive force during the assault probably using sexuality as an expression of power and control. Finally, the criminal offender commits crimes that are not obviously sexual but may incorporate many aspects of criminal actions.

Theories of sexual homicide

Several studies have since adopted a more behavioral approach to the analysis of sexual crimes, in particular those looking at sexual homicide. The most quoted and used, are those studies conducted by the FBI (e.g. Ressler, Burgess, & Douglas 1988), based on interviews with 36 convicted sexual murderers which have aimed to relate motivation of offender to how they act during their crimes, and which outline a typology of Organized and Disorganized offender profiles. However, although these studies have since been used as the basis for much of the behavioral work in the area of classifying sexual crimes, a number of studies (e.g. Canter, D. V., Alison, L. J., Alison, E., & Wentink 2004; Salfati & Canter 1999) have since suggested that there are inherent methodological problems with these studies which decrease their validity, and as such caution needs to be taken in using this model in any research on classification.

Meloy (2000) provided a recent integrated review of clinical factors associated with sexual homicide. He shows that there have been a number of different approaches which have developed over time, from small clusterings of descriptive cases, to larger, but still nonrandom, descriptive studies, to comparative studies of intra-group and inter-group similarities and differences. From these studies he highlights what we know about the correlates of sexual homicide. Most are committed by males, with the first murder starting prior to the age of 30. Most of the victims are female strangers or casual acquaintances. Most offenders are not psychotic, although mood disorders, and drug and alcohol dependencies are often present. On the other hand, he states that virtually all sexual homicide perpetrators evidence narcissistic and psychopathic personality traits. He also suggests that sexual fantasy plays a large role. In terms of behaviors, he draws much of his evidence from the Organized and Disorganized FBI work. However, when quoting the actual behaviors related to sexual homicide, based on Ressler et al.'s (1988) study, he does acknowledge that caution must be used: "First, Ressler et al. (1988) used no comparison group. Therefore, none of these variables may be *specific* to sexual homicide perpetration in adulthood. And there are no data, even if specific, which suggest they *predict* sexual homicide ... Second, even though social deviance is quite frequent in the early years of sexual homicide perpetrators, most of their sample did not experience such deviance, an aspect of the data also ignored." (p. 13).

Keppel and Walter (1999) in their study further highlight the problem that many other researchers have found in attempting to apply clinical and law-enforcement models of criminal behavior to actual investigative work, namely that these models lack detail in terms of observable crime scene behaviors and offender characteristics. Using Hazelwood and Burgess's (1987) model of rapists (a refinement of the Groth et al. (1977) model on rapists), they attempted to extend it by providing more detail of what actual behaviors may be related to each of their types, and additionally aimed to extend the model to include sexual offenders who both rape and murder during their crimes, and provide a more behavioral framework that classifies differences in sexual homicide offenses as variation in aggression, power, and sexual assertiveness. Their model aims to identify the motivations for the offender's wish to rape, and the reasons why they will eventually kill the victim, in

particular in terms of whether the murder was planned, or a byproduct of the rape not going as planned. They highlight what behaviors may be evidenced at the crime scene, and make some reference to how each type may show development across a potential series. They also provide ideas as to the characteristics of the offenders responsible for each different type of offense. However, the assumptions of the correlations amongst the variables within each type in the model was not tested, and so the model lacks reliability. They did attempt to give an indication of which type is the most prevalent in the sexual murder population by looking at 2476 sexual homicide offenders incarcerated within the Michigan Department of Corrections. However, no details were given how this allocation was carried out, and so validity of the results are limited. However, the model does provide some interesting indications of the theoretical relationships between an offender's actions at the crime scene, and how these actions may be related to the actions of the victim. The model also provides some indication how these behaviors may be linked to aspects of the offender. However, before such a model can reliably be used, it needs to be tested, evaluated and refined through future rigorous scientific methods.

Bringing together rape and sexual homicide

Grubin (1994) states that the to date “lack of comparative framework between different types of sexual assaults limits the confidence with which etiological models can be put forward, and handicaps the search for factors which may help identify those individuals who are most at risk of committing sexual murder, or of killing again” (p. 625). He went on to compare 21 men convicted of sexual murder with 121 men convicted of rape and found several differentiating factors particularly regarding the violence used. A substantially higher incidence of frenetic expressive acts of violence were elicited in sexual homicide offenses compared to rape offenses, and anger was the most extreme motivation in the 18 murder cases where motive was present. Grubin further reports that in only three cases was the process of causing death itself sexually arousing for the offender.

Recently, the influence of expressiveness, and aggressive violence, has been employed by a growing number of studies to differentiate between the relative focus of offenders during crimes such as rape and homicide. Knight et al. (1998) found a significant positive relationship between sexual crimes involving predominantly expressive behaviors and the degree of fatal injuries to the victim. These studies tentatively imply that sexual homicide may be interpreted as a predominantly expressive act of aggression committed out of a hostile desire to harm, while rape may be closely related to more controlled acts of instrumental aggression used more to force compliance from a victim.

Rosenberg, Knight, Prentky, and Lee (1988), in their work at the Massachusetts Treatment Center also developed, as part of MTC:R2, a system for classifying rapists according to three dimensions, which included the expressive/instrumental dichotomy as one of the dimensions (the meaning of the aggression in the rapist's offenses). The other two dimensions included the meaning of the sexual behavior (compensatory, exploitative, displaced anger, sadistic), and the degree of general lifestyle impulsivity (low or high). Although this version of the MTC was later revised, this particular paper highlights reasons why the offender expressed expressive or instrumental aggression. Within the instrumental group, their results showed that it was possible to predict the meaning of their sexual behavior as either compensatory or exploitative. Within the expressive group, their results showed that it was possible to predict the meaning of their sexual behavior as either displaced anger or sadistic.

Towards an integrated framework of sexual crimes

Although there exist clear differences in the frameworks used to model the behavior of sexual homicide and rape offenders, it has been shown that there still remain sufficient parallels for hypotheses to be formed regarding an overall framework of sexual assault. These parallels emerge from the ability to identify patterns in offenders' behaviors in terms of distinct styles of interaction with the victim. The pattern of behaviors in rape offenses, for example, has repeatedly been shown to be usefully represented by different types that reflect sexual, violent and controlling aspects of offender–victim interaction. For sexual homicide offenses, the interpretation of patterns in crime scene behavior has shown similar patterns, although the emphasis in homicide has been shown to be one that is more expressive and violent. Based on the similarities in theory, it may thus be useful to further explore the possibility of developing an overall model of offender–victim interaction in sexual assault, which would encompass both rape and sexual homicide cases.

If behavior can be empirically seen to distinguish sexual homicide from rape offenses, then it may be possible to offer a refined conceptualization of sexual violence in the form of a continuum. Such a continuum can be seen as an extension of Canter's (2000) notion of "behavioral salience" where each crime scene behavior is associated to a greater or lesser extent with each type of crime. This crime–behavior association depends solely on the behaviors' relative positioning on the continuum. Those behaviors at the nodal points of the continuum are associated almost exclusively with one crime type, and behaviors positioned towards the middle of the continuum would typically be associated equally with both forms of sexual assault. This form of modeling will not only indicate the possibility of differentiating between sexual homicide and rape, but it acts as a refinement by defining the degree each behavior distinguishes between the two forms of crime.

Aims of the study

The evident similarities between the frameworks proposed by various authors illustrates the potential for providing a general model of sexual violence based on the offender's interaction with the victim. It can also be hypothesized that sexual homicide and rape offenses may be differentiated by variations in emphasis across the various sub-themes of such a model. The examination of this proposal through an intra-domain approach requires two stages.

The initial stage is to derive a single overall domain framework for representing the groups being studied. In the current research, this first stage requires a test of whether it is possible to represent the actions of sexual homicide and rape offenders in a single thematic framework based on the offender–victim interaction. It can thus be hypothesized that subsets of conceptually related behaviors will consistently occur together during offenses.

The second stage of an intra-domain approach is concerned with the possibility that sexual homicide and rape offenders may show different emphases in behavior within the general sexual assault framework. As the research is intra-domain, this possibility may only be examined if a single thematic framework can be identified for sexual assault, although it remains possible to draw on previous literature to derive hypotheses about the predominant differences between each crime.

Finally, support for the differentiation between crimes opens the possibility of conceptualizing sexual homicide and rape along a single scale. For such a refined conceptualization to be useful, it would be expected that there would be an interpretable structure to the continuum. It would thus be hypothesized that behaviors associated

predominantly with sexual homicide and rape will fall in two discrete region of the continuum, with those behaviors most characteristic of the crimes situated towards the polar points of the continuum.

Taken together, an examination of these hypotheses will test the potential of using a single framework for understanding sexual assault, and determine the extent to which sexual homicide and rape offenders show different emphases in their interaction with victims during the assault. The findings will also give a first impression as to the usefulness of an intra-domain approach for studying the similarities and differences between previously unrelated research areas.

Method

Data sample

The data sample consisted of crime scene information across 74 solved cases of single offender–single victim sexual assault, collected from the archives of various British police forces. Thirty-seven of these cases were extracted from a research database of homicide offenders (Salfati 2000) with the restriction that all offenses encompassed a clearly *visible* behavioral element of sexual behavior. Included in this group were offenses containing physical evidence of vaginal or anal penetration (by the offender or with a foreign object used by the offender), as well as cases where there were traces of semen found in or on the body. The remaining 37 cases were randomly selected from a database of rape offenses (Heritage 1992).

Data coding

The variations between the coding protocols used to originally formulate each data source made it necessary to reconstruct the data into a single congruous framework. In order to achieve this, a comparison between the existing content analysis dictionaries was used to identify variables with a high degree of definitional similarity, and a decision made as to the appropriateness of merging the data. This procedure identified 17 variables that related directly to the actions of offenders at each of the crime scenes.

These behavioral variables were scored in a dichotomous format as either absent (or information missing) or present across all of the 74 offenses. This method of analyzing the data was adopted following previous research findings (Canter & Heritage 1990) that show a dichotomous approach as effective in producing interpretable results, whilst minimizing the opportunity for subjective and potentially unreliable coding of the data. The 17 dichotomous variables across the 74 offenses provided the data matrix on which subsequent analysis was conducted. Table I shows each of the 17 variables together with a brief coding definition. For ease of distinction, variables have been classified under the subtitles of the later sub-groups highlighted by the analysis.

Results

Sample demographics

Offender demographics. The sexual homicide offenders were aged between 16 and 58 (mean = 29.4) years, while the rape offenders were between 14 and 50 (mean = 23.5) years of age. All of the 74 assaults involved male offenders.

Table I. Homicide crime scene variables.

Exploiting actions (Sex and Theft)

Naked: This represents a re-coded variable that was scored as present if the victim's clothes were removed during the offense. In concordance with Salfati (2000), this variable was coded as present even if the victim had already been naked before the offense.

Vaginal penetration: Scored as present when there was evidence that the vagina had been penetrated by any body part or object. To successfully integrate the data samples on this variable it was necessary to combine the three vaginal penetration categories used within Heritage's (1992) content dictionary.

Anal penetration: Where there was evidence that the anus had been penetrated by any body part or object this variable was scored as present. A combination of Heritage's variables, anal penetration and anal penetration in sequence were used for this category.

Foreign object inserted: This variable was scored as present where there was evidence that an object had penetrated the anus or vagina specifically.

Sexual: Adopted from Salfati's (2000) database, this variable was coded as present when the case notes indicated an obvious sexual motive to the attack, or where there were physical signs of a sexual character. To concur with Heritage's database, this variable excluded vaginal or anal penetration but included acts of fellatio or cunnilingus.

Property stolen: This variable was coded present where there was evidence that low value objects had been stolen from the victim at the crime scene. In combining the databases it was not possible to maintain Heritage's (1992) distinction between identifiable and non-identifiable objects.

Property stolen of value: This variable was scored as present when property stolen had a significant resale value, enabling the offender to make a profit. Objects coded using this variable would be items including credit cards, notes of money, checkbooks and passports. Again, when conjoining the data samples it was not possible to maintain the distinction between identifiable and non-identifiable property of value.

Control-related actions

Binding: This variable was scored as present where there was evidence that the victim had been bound or gagged. Thus, this variable represents a combination of Heritage's (1992) binding and gagged variables.

Blindfolded: An easily combined variable, this was scored as present when there was evidence that the victim had been blindfolded during the attack.

Control: This variable was scored as present when there was evidence suggesting that a weapon had been used to overpower or coerce a victim. Evidence for such coercion comes from witness statements, or in the case of sexual homicide victims, from specific wounds to the body.

Forensic awareness: This variable was scored as present where there was evidence that the offender was forensically aware, i.e. if they avoided leaving forensic evidence (e.g. by wearing gloves or condom), or removed evidence that could be used to identify him (e.g. removed the weapon from the scene).

Violence-related actions

Multiple wounds: Where there was evidence that the victim had sustained wounds to several body regions then this variable was scored as present.

Non-controlled violence: This variable was scored as present when there was evidence of a sudden manual attack, violent in nature that significantly wounded the victim. This newly derived variable represented a composite of the variables manual (Salfati 2000) and blitz attack (Heritage 1992).

Single wound: This variable was scored when there was evidence that the victim had received only a single wound to one area of the body.

Clothes ripped: This variable was coded as present when there was evidence suggesting that the victim's clothes had been ripped during the attack.

Weapon from scene: This variable was scored as present when there was evidence that the offender had inflicted injuries on the victim using a weapon found at the scene. The definition of scene was maintained from Salfati's content dictionary as reflecting the general area, such as the whole house if the victim was killed in his or her own home.

Weapon to scene: Easily combined, this variable was scored as present when there was evidence that the offender had brought a weapon with them to the crime scene.

Sexual activity. Approximately three-quarters of all sexual violent offenses involved vaginal penetration (74.5%). Of these cases, a significantly higher proportion were committed by rapists (89%) in comparison to sexual homicide offenders (60%; $\chi^2 = 8.57$, d.f. = 1,

$p < 0.01$). This variation in behavior was not substantiated by differences in the incidence of general sexual activity (32% compared with 35%¹), anal penetration (19% compared with 14%), the degree victims were found naked (87% compared with 82%), or the insertion of a foreign object (8% compared with 0%).

Weapon and item activity. A significantly higher number of rape offenders brought a weapon to the crime scene (14% compared with 43%; $\chi^2 = 8.05$, d.f. = 1, $p < 0.05$). Sexual homicide offenders were typically more likely to use a weapon found at the crime scene (35% compared with 5%; $\chi^2 = 10.12$, d.f. = 1, $p < 0.01$). Rape offenders (38%) were more likely, but not significantly, to steal any type of property than sexual homicide offenders (30%). In terms of what they stole, rape offenders were more likely to steal non-identifiable property (30% compared with 24%), but this was counterbalanced by the trend found for stealing property of value (27% compared with 30%). However, these differences were not significant.

Wounding actions. Sexual homicide offenders were approximately four times more likely to engage in non-controlled violence (76% compared with 3%; $\chi^2 = 41.34$, d.f. = 1, $p < 0.01$), and inflict multiple wounds (73% compared with 19%; $\chi^2 = 21.77$, d.f. = 1, $p < 0.01$). In contrast, there was no significant difference between the two groups with respect to the infliction of single wounds (27% compared with 38%) or ripping of the victims clothing (11% compared with 14%).

Control of victim actions. Rapists were over three times more likely than sexual homicide offenders to restrict their victim's actions through binding (24% compared with 8%; $\chi^2 = 3.58$, d.f. = 1, $p < 0.10$) or blindfolding (16% compared with 5%, $\chi^2 = 3.16$, d.f. = 1, $p < 0.10$). In contrast, the relative frequency of occurrence for forensic awareness contradicts this pattern, with sexual homicide offenders demonstrating a significantly higher level of forensic awareness in comparison to rape offenders (30% compared with 8%; $\chi^2 = 5.64$, d.f. = 1, $p < 0.05$).

Smallest Space Analysis (SSA)

The data were analyzed using a non-metric multidimensional scaling procedure known as Smallest Space Analysis (SSA-I; Lingoes 1973). Smallest space analysis is based on the assumption that any underlying structure or common theme in behavior will be most readily appreciated by examining the relationship each variable has with every other variable. These relationships are measured using association coefficients,² the rank order of which is visually represented as distances in geometric space. The representation is such that the higher the association between any two variables, the closer together the points representing them will appear on the spatial plot. In this way, points that appear geometrically closer on the SSA results plot will represent behaviors that frequently occur together at a crime scene.

The principal hypothesis of this study is built on the assumption that each type of offender-victim interaction is typically associated with a distinct group of crime scene behaviors. These sub-groups of behavioral variables are hypothesized to have a common quality that clearly instantiates each of the proposed interaction themes. Support for each theme would therefore be evident when actions with common underlying features co-occur in the same region of the SSA plot relative to those actions that reflect a different behavioral theme. This represents a specific example of the regional hypothesis, which states that

elements of a common thematic construct will co-occur in the same region of an SSA space relative to those elements of an unrelated construct. The notion of regionality has previously been seen as an appropriate way of interpreting co-occurrences of behaviors, and has successfully been used to interpret both studies of emotion and personality (see Plutchik & Conte 1997).

A general indication of how well the spatial configuration accurately represents the co-occurrences as represented in the matrix is provided by the coefficient of alienation (Borg & Lingoes 1987). The smaller the coefficient of alienation, the better the fit of the plot to the original association matrix. It can therefore be used as a general indication of the degree to which the variable inter-associations are represented by their corresponding spatial distances in the solution space. However, it is not possible to make a single judgment regarding the accuracy of the representation in terms of "good" or "bad". This question depends on a complex combination of the number of variables, the amount of error in the data, and the logical strength of the interpretation framework (see Canter 1995). A general accepted coefficient level for data which contains a notable amount of noise such as archival files is 0.2.

SSA of sexual assault crime scene behavior

An SSA solution in three dimensions was calculated for the 74 crime scenes (37 sexual homicide and 37 rape). The configuration was found to have a coefficient of alienation of 0.127 in 19 iterations, indicating an excellent fit for these data. Figure 1 displays two-

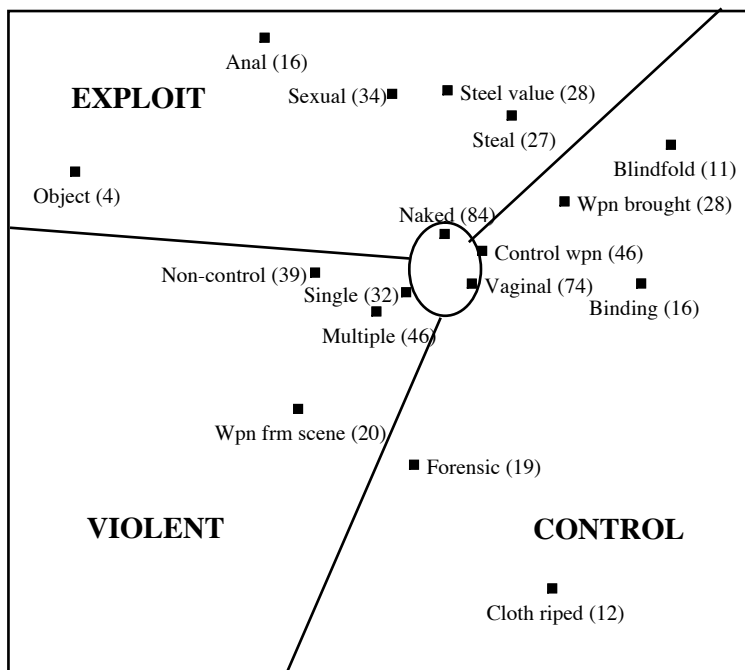


Figure 1. Smallest Space Analysis of crime scene actions in 37 sexual homicide and 37 rape offenses (coefficient of alienation = 0.127). Regional divisions are superimposed to show the three modes of interaction with the victim. The percentage frequency of occurrence for each variable is shown in parentheses.

dimensional projection of the three-dimensional resulting configuration, with each point corresponding to one of the 17 variables describing offense behavior given in Table I.

Visual examination of the SSA configuration revealed distinct regions of the solution space, which further revealed an underlying thematic structure in offenders' behavior at the crime scene, relating to different types of offender–victim interaction. In accord with the regional hypothesis, the distribution of action variables may be interpreted as representing three interaction themes, labeled, Exploit, Control, and Violence. Dividing lines have been superimposed onto Figure 1 in order to illustrate these regions, and frequencies for each of the behaviors are illustrated in parentheses.

As can be seen from Figure 1, there were two actions located at the center of the configuration that were not particular to any region. These variables occurred in the majority of the 74 sexual assaults (84% of offenses involved the victim being naked, while 75% of cases involved vaginal penetration). As such, these variables were thought to be conceptually central to offenders' crime scene behavior, in other words the defining characteristics of the sexual assaults in this sample. This interpretation of a focus to sexual assaults is consistent with previous models (e.g. Canter & Heritage 1990) and implies an assault that it is not overly aggressive or dominated by sexual desire. Instead, the focus is one of disturbing the victims clothing and engaging in vaginal intercourse.

Exploit. The behaviors associated with this form of sexual assault reflect an offense dominated by exploitation of the victim. Five variables related specifically to victim exploitation:

- anal penetration;
- foreign object inserted into the victim;
- other sexual activity;
- stealing non-identifiable items from the victim; and
- stealing items of value from the victim.

These offenses may often involve physical exploitation, through acts of vaginal or anal penetration that are performed either individually or as components in a sequence of sexual activity. This form of interaction also involves the more obscure violent sexual behavior of inserting an object into the victim. It is therefore interesting that the point denoting this variable is located on the boarder between the Exploit and Violence regions, as such a location clearly supports the assumed hostile nature of this form of sexual activity. The region's association with the two variables relating to stealing reflects the possibility that a victim may also be exploited for material possessions. This relationship has previously been noted in other research (Salfati, 2000; Salfati & Canter 1999; Salfati & Heratsis, 2001; Santtila, Canter, Elfgrén, & Häkkinen 2001). Thus, these variables create a coherent sub-group of behaviors that portray exploitation as a significant facet of sexual violence where the victim is an object used for sexual gratification or material gain.

Control. The behaviors in this region of the SSA plot are a clear indication of non-impulsive, controlled attacks on individuals that are not obviously motivated by sexual intent. Six variables support a controlling theme:

- binding the victim;
- blindfolding the victim;
- the offender ripping the victim's clothing;

- exerting control using a weapon;
- offender being forensically aware; and
- the offender bringing a weapon to the scene.

These offenses typically involved attempts to control the victim's responses through physical constraints such as binding and blindfolding. The assaults were also associated with evidence suggesting a degree of pre-planning, as in many cases offenders brought a weapon to the scene. The proposed control emphasis of this region is also reinforced by an association with the variable denoting forensic awareness, which suggests that the offender was sufficiently conscious not to leave, or remove, forensic evidence. Taken together, these behaviors indicate an offender that is primarily concerned with controlling the outcome of the interaction.

Violence. The behaviors associated with this form of sexual assault had a highly hostile emphasis involving a frenzied and impulsive attack on the victim's person. Four variables particularly indicate a violent attack:

- single wounding to the victim;
- multiple wounding to the victim;
- non-controlled violence; and
- the offender using a weapon taken from the scene itself.

For these types of sexual assault, these interactions typically involved the infliction of several wounds. These injuries were usually caused by use of a weapon found at the crime scene, although some cases also involved a non-controlled attack (e.g. where the offender engaged in manual violence). For these offenders, the act of interpersonal aggression during an assault may be of greater significance than any accompanying sexual gratification.

Differentiating sexual homicide and rape

The clarity of the proposed SSA regioning indicates that a single thematic framework can be used to model the crime scene behavior from both sexual homicide and rape offenders. This possibility enables an examination of the second hypothesis, which predicts a difference in the emphasis of sexual homicide and rape offenders' behavior within the three-fold model. This will be done through two different methods, set out below.

Associating crime type to SSA region

One appropriate method of testing this second hypothesis is to examine each behavioral variable in terms of its frequency of occurrence in sexual homicide offenses compared with rape offenses. Each behavior may then be categorized with respect to whether it occurred more often within the offense of sexual homicide, rape, or equally between both types of crime. For instance, blindfolding of the victim occurred twice in sexual homicide offenses and seven times for rape offenses, and so was classified as predominantly relating to rape. This simple criterion provided a method for assigning each behavior to an offense category of sexual homicide or rape, with the rationale that relatively more frequent behaviors were more closely associated with offender-victim interactions of that type of sexual assault.

The solution of using offense type (rape or sexual homicide) as an external variable in the SSA plot is shown in Figure 2. As can be seen, almost all the actions that occurred more frequently in sexual homicide offenses are situated towards the bottom-left quadrant of the

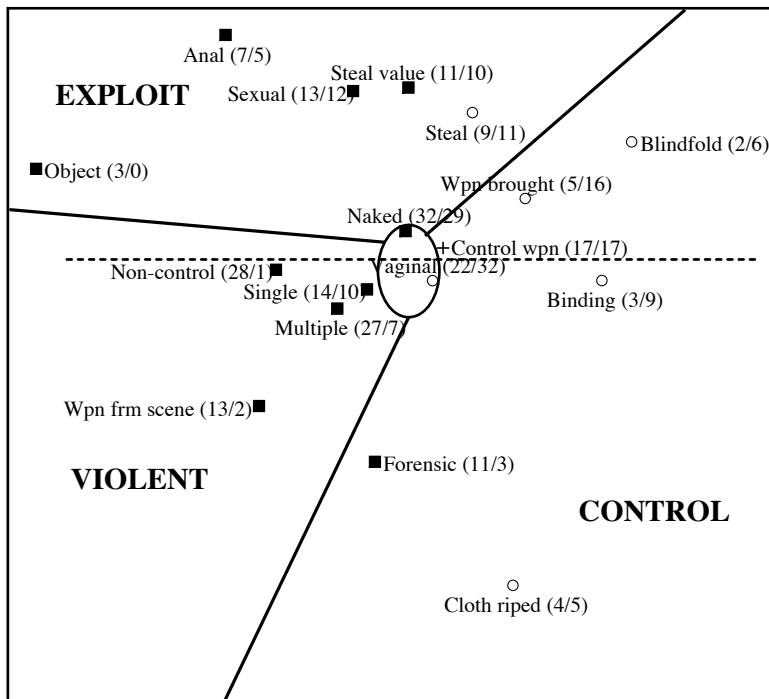


Figure 2. Smallest Space Analysis of crime scene actions in 37 sexual homicide and 37 rape offenses: testing of model. The solution space is overlaid with the predominant frequency of occurrence for sexual homicide and rape offenses. The first value in the parentheses denotes frequency of occurrence for sexual homicide offenses, the second value rape offenses. The offense type which is most strongly represented is denoted by a symbol (■, sexual homicide; ○, rape). The regression line indicating the best fit between offense type is indicated by the dashed line.

solution space, while variables typically associated with rape offenses are partitioned towards the upper-right region of the space. This distribution of points within distinct regions of the solution space gives support to the second hypothesis, suggesting that sexual homicide and rape offenses are predominantly associated with distinct groups of behaviors. The behaviors most associated with sexual homicide offenses reflect a violent physical attack, involving multiple wounding of the victim and the use of non-controlled violence. This emphasis on violence is further reflected by the predominance of anal penetration and object insertion during sexual homicide offenses, with such actions clearly involving an aggressive physical intrusion. A contrasting emphasis is evident for rape offenders, who typically use binding or blindfolding to reduce the degree of victim reaction, and often use the attack as an opportunity to steal property. The rape offenders' actions are often not focused on harming the victim, but reflect a non-impulsive attempt to control the victim's reactions to the personal intrusion.

Discriminant Function Analysis

The possibility that sexual homicide and rape are associated with different sets of crime scene behaviors may also be tested by using the interrelations among behavioral variables to derive a predictive model of offense group membership. This may be achieved using a discriminant analysis in which the three dimensions of the SSA served as independent variables, since these coordinates summarize the pattern of relationships among crime scene

behaviors. If the crime scene behaviors associated with sexual homicide and rape fall in different regions of the SSA space, then a single linear combination of the coordinates for each behavior should be sufficient to distinguish between the two types of crime. In the case that each crime type is not typically associated with a different set of behaviors, then no such single function will prove useful in predicting offense group membership. Thus, if sexual homicide and rape offenses do typically involve different forms of interpersonal interaction, then a single function derived from a reduction of the multivariate structure of sexual assault behavior will retain sufficient information to allow accurate prediction of offense group membership.

In advance of computing this analysis, the variable “control using weapon” was excluded from the data set on the grounds that it occurred equally in both sexual homicide and rape and so failed to provide any extra information to differentiate between offense type. Indeed, the variable may actually reduce the effectiveness of analysis by forcing the discriminant analysis to include a further function that accounts for only the single variable. This would clearly detract from any discriminant modeling of actual differences in sexual homicide and rape offenders’ behavior.

A single significant discriminant function resulted when the coordinates of each offense variable were used as predictors of the offense type associated with each crime scene behavior (the function had a canonical correlation of 0.78 with the offense groups). Dimension 1 of the SSA solution had a correlation of 1.00 with the first discriminant function, whereas dimension 2 had a correlation of 0.07 and dimension 3 had a correlation of -0.2 with the same function. *Post hoc* classification based on the single function resulted in 100% correct classification of crime scene actions to offense type. Remarkably, these results indicate that dimension 1 alone can provide perfect discrimination between those behaviors most associated with sexual homicide and rape offenses, supporting the claim that the behavioral emphasis for each type of sexual assault lie in distinct portions of the empirical space.

The capacity for a single dimension to differentiate sexual homicide and rape may be seen visually by regressing the external (dependent) variable denoting offense type onto the coordinates for each behavior across the three dimensions (scored 1 for rape and 2 for sexual homicide). Figure 2 shows the SSA space superimposed with the regression line through the space. Dimensions 1 and 2 significantly predicted offense group, $R = 0.759$; $R^2 = 0.575$; $F_{(2,12)} = 8.811$, $p < 0.01$; $\beta_1 = 0.753$, $\beta_2 = 0.057$. The plot of a line reflecting offense type through the space serves to further illustrate that regions of the configuration discriminate behaviors predominantly associated with sexual homicide and rape.

Summary: A continuum of sexual violent behavior

The capacity of a single discriminant function to achieve perfect differentiation between crime scene actions associated mainly with sexual homicide and rape provides strong support for the possibility that sexually violent behavior can be modeled on a single continuum. This proposal is more directly tested using the regression line predicting offense group, which may be used to produce a schematic version of the discriminant function (a rotation of dimension 1). This provides an approximate representation of offense behaviors along a one-dimensional line (see Figure 3). The placement of behaviors along this continuum is determined by mapping a perpendicular line from the regression approximation to each of the points representing offense behavior. The relative positioning of each line’s intersect along the regression curve can then be used to generate a one-dimensional

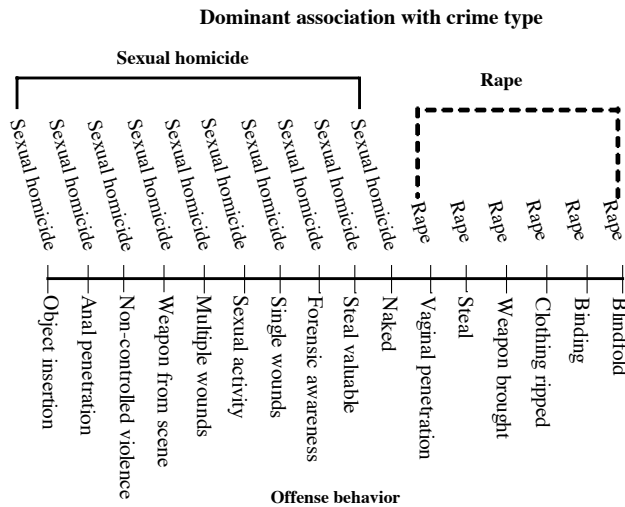


Figure 3. Schematic representation of behaviors relative placement on the best-fit regression line, together with an identification of the dominantly associated crime type.

continuum of the relative associations between behaviors. The relative position of each behavior along the regression line is replicated in Figure 3.

As this continuum was derived directly from the SSA configuration, it remains that behaviors located closer together on the solution continuum are more likely to both occur during a sexual assault. So, for example, “blindfolding” and “binding” of a victim typically occurs together during an attack, whereas “blindfolding” and “insertion of an object” are, relatively, the least likely behaviors to co-occur within sexual violent crime. Of further interest is that the core behaviors “vaginal penetration” and “victim naked” are situated in neighboring locations in the middle of the continuum, substantiating the suggestion that these behaviors are equally central to any definition of sexual homicide and rape. Similarly, the location of the two variables “weapon from scene used” and “weapon brought to scene” at opposing ends of the continuum implies that these behaviors have very different psychological implications. This suggests that studies that have examined weapon use as a general variable for understanding offender behavior may have overlooked important aspects of crime scene interaction.

A further series of interesting findings can be derived from this continuum by mapping on the offense group that is most associated with each of the crime scene behaviors. As is shown in the upper portion of Figure 3, a clear divide emerges between those behaviors relating predominantly to sexual homicide and those mainly relating to rape. In other words, a movement along the continuum represents an overall trend away from actions associated with rape to actions more representative of sexual homicide. In this projection, the relationships between the crime scene actions associated with each type of offense can be clearly seen. Rape offenses are predominantly associated with instrumental behaviors, most notably the controlling of the victim’s reactions by binding and blindfolding. This contrasts with sexual homicide offenses, which are more often associated with expressive and hostile acts of violence. Interestingly, the two behaviors associated with the extreme sexual homicide end of the continuum are anal penetration and insertion of an object. These behaviors are overtly sexual rather than violent, although it is clear that they still incorporate a violent aspect. The overall progression underlying the continuum is therefore

one of movement away from non-impulsive controlling behaviors to extremely hostile and expressive attacks on the victim.

Discussion

This study shows that variations in the thematic pattern of offenders' actions at crime scenes can be used as a first step to explore the differences and similarities between sexual homicide and rape offenses, through investigating the actual actions of the offender during the crime. The results illustrate the effectiveness of examining behaviors from two different offense types within a single domain, both in terms of the possibility for more subtle comparisons and the ability to use a range of empirical statistics not possible when comparing across different frameworks.

The first stage of analysis showed that it is possible to progress from individual models of sexual homicide and rape to form an overall framework for understanding sexual assault. Specifically, results showed that crime scene behavior in both sexual homicide and rape offenses could be effectively characterized using a single three-fold thematic framework (Control, Exploit, and Violent). As such, the results lend support to some of the previous perspectives advocated in research on sexual violent crimes, showing that each explanation may be construed as relating to a different style of interacting with the victim. More importantly, these results represent a first attempt to demonstrate the value of moving towards more encompassing models of crime scene actions. Such frameworks offer a uniform theoretical reference for a variety of offense types, providing an effective basis for understanding the major psychological differences and similarities between legally distinct types of offenses.

In the present study, the capacity of a single thematic framework to readily differentiate between different "types" of offender groups was realized in the second part of the analysis, which identified the important role of violence as an underlying theme for differentiating sexual homicide and rape. The findings indicated that the emphasis of actions within the facet structure were significantly more violent for sexual homicide compared with rape, such that behaviors predominantly associated with each offense occurred at distinct ends of an empirically derived continuum. The derivation of this continuum proved useful as it both summarized the relative importance of offense actions within sexual homicide and rape offenses, and gave some indication of the underlying theme or order across these offenses.

The notion of discriminating between sexual homicide and rape by the degree of violent behavior in the attack is consistent with previous narrative-based research (e.g. Grubin, 1994). Indeed, the current study increases the validity of previous findings because it represented a direct empirical test based on classification schemes derived from examination of offenders' actions in violent sexual attacks. By founding conclusions on behavioral indicators rather than narrative accounts given by offenders, the study avoided relying on the subjective and potentially biased descriptions of sexual violence that have limited previous research. However, the next step of such a framework, would be to add an understanding of how an offender who commits a particular type of sexual offense, explains it narratively.

As a first step towards developing a general model of sexual violence, the current findings provide insights that allow for a refined understanding and interpretation of previous behavioral frameworks. For example, the results of the current study may at first sight seem contradictory to previous findings (e.g. Salfati, 2000; Salfati & Canter 1999; Salfati &

Heratsis 2001), which suggest that sexual homicide represents a distinct sub-group of instrumental homicide. However, such a conclusion may not be accurate because the expressive–instrumental dichotomy only delineates relative differences in the context of homicide, where the offense of sexual homicide may be comparatively a predominant act of instrumental violence simply because of the greater incidence of sexual activity involved in the offense. This distinction is not apparent when comparing sexual homicide to rape, where findings of the present study suggest that rape offenders adopt a controlled approach to interaction in comparison to sexual homicide offenders. The current intra-domain model, therefore, represents a very real example of a methodology that allows research to move across the hierarchical boundaries of criminological investigation (Canter, 2000). Specifically, the current intra-domain analysis enabled patterns of offense behavior to be considered at the higher dimension of comparisons across crime type.

Future research

The distinct nature of the identified thematic differences and similarities between sexual homicide and rape has a number of implications for future empirical research. It would certainly be useful to attempt to replicate and further develop this work using larger samples. Similarly, initial attempts to develop the proposed framework should endeavor to identify differentiating characteristics of sexual homicide and rape offenders that will relate directly to actions at the crime scene, enabling valid inferences from actions to characteristics. Indeed, examining the types of people who commit sexual assaults would allow for an improved understanding about the differences and similarities of these offenses in terms of whether they are associated with the same types of criminals. Further research should also consider refining the variables used to conceptualize offenders' actions within a particular framework as well as identify similarities and differences among behaviors occurring during other forms of sexual and non-sexual violence. Such research will prove extremely fruitful not merely because it will explicate the empirical structures representing individual offenses, but because it will also allow for the gradual development of a general theory that defines the behavioral relationships amongst various criminal sexual activity. The understanding of criminal behavior encapsulated in such a model can only serve to elucidate further the nature of sexual offenses and offenders.

Moreover, the model proposed needs to be expanded to include more types of crimes, that may share similar underlying psychological dimensions. These would include other sexual crime subgroups that have been shown to be important (e.g. offenders targeting prostitutes, young offenders, offenders with learning disabilities), non-sexual person offenses such as homicide and assault, and non-person offenses such as theft and burglary. The inclusion of all of these would not only allow for a more general theory and understanding of criminal activity, but it would also allow researchers to go beyond only investigating offenders labeled by their index offense, when in fact the literature has shown that offenders are eclectic in both their current and in their previous criminal activities. This would also allow further investigation of the relationship between previous criminal activity and how this may influence current activity in terms of crime scene behavior and victim targeting.

Conclusion

The findings of this empirical study have indicated the potential for differentiating sexual homicide and rape offenses by the thematic patterns of offenders' actions at the crime

scene. The predominant theme underlying the actions of sexual homicide offenders is one of expressive conflict against people. In contrast, rape is associated with a more holistic set of criminal actions in which violence is applied in a controlled, goal orientated manner. This elucidates the original theoretical frameworks that have been developed to understand sexual violence and emphasizes the psychological interconnections between legally distinct categories of sexual violent crime. The application of psychological research to the study of sexual violent crime must now further explore the relationships between behavioral models in a structured fashion so that knowledge regarding the similarities and differences between offenses can be systematically enhanced and forged into a framework for understanding sexual offending.

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Notes

- 1 Frequencies are reported in the order of sexual homicide offenders followed by rape offenders throughout.
- 2 All SSAs were analyzed using Jaccard's association coefficient.

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