

The Use of Crime Scene and Demographic Information in the Identification of Non-Serial Sexual Homicide

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Abstract

As with other sexual offenders, sexual homicide perpetrators can be reluctant to talk about their criminal behavior. Therefore, in homicide cases, forensic practitioners frequently rely on crime scene information to identify any sexual behavior associated with the offense. This study aims to identify objective and readily available crime scene information, alongside information about victims and perpetrators, based on 65 cases from England and Wales in the United Kingdom of men convicted of homicide who had committed a non-serial sexual homicide and 64 cases of men convicted of homicide where the available evidence indicated that it was a non-serial non-sexual homicide. Chi-square tests and logistic regression were used to analyze the data. There were few differences in terms of demographic information and criminal histories between the two perpetrator groups. There were crime scene indicators supporting the use of Ressler et al.'s definition of sexual homicide. The victims of sexual homicide were generally found in their home with the lower half of the body exposed and with evidence of vaginal sex. Furthermore, extreme injuries and strangulation were more frequent in sexual homicides. Use of weapon was associated with a non-sexual homicide. Victims of sexual homicide were as likely to know the perpetrator as not. Potential benefits of the characteristics reported to investigators and forensic practitioners tasked with identifying sexual homicides are discussed and areas for further research suggested.

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In England and Wales, as in many other jurisdictions, there is no legal definition of sexual homicide. In the majority of cases therefore, perpetrators of sexual homicide are not charged with a sexual offense alongside the killing. The lack of a legal definition brings challenges for forensic practitioners judging whether there has been a fusion of sexual (actual or intended) and aggressive behavior during the taking of a life. The possible sexual dynamics of a homicide may not be recognized by the police or by the courts: It may not be apparent to the police that a killing was a sexual homicide, and even when this is suspected, it can be extremely difficult to uncover forensic evidence to show that a killing has a sexual element (Arrigo & Purcell, 2001; Brownmiller, 1975; Folino, 2000; Grubin, 1994; MacDonald, 1971; Revitch, 1965).

In the absence of official guidance regarding a legal definition, efforts to identify the characteristics of sexual homicide have been made by law enforcement agencies, practitioners, and scholars. Research in the field has considered how an improved understanding of the crime scene of sexual homicide offenses can assist investigators (e.g., Balemba, Beauregard, & Martineau, 2014). This assumes that the sexual aspect of the crime can be easily ascertained. However, in practice, homicides have been defined as sexual because there is evidence of a sexual act (Folino, 2000), or because evidence can be drawn from the crime scene to suggest a sexual element to the homicide (Myers, Burgess, Burgess, & Douglas, 1999). Thus, Ressler, Burgess, and Douglas (1988) suggested that deciding whether a sexual homicide occurred should be based on evidence or observation concerning “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” (p. xiii). Although alternative definitions have been used in research (e.g., Proulx, Cusson, & Beauregard, 2007), the Ressler et al. (1988) work is widely relied on by researchers and forensic practitioners despite receiving limited empirical validation.

In practice, applying a definition of sexual homicide to individual cases can be problematic. For instance, even with guidance, there can be considerable variation in the extent to which crime scene information may provide clear evidence of a sexual element. There could, for example, be tangible evidence of the homicide being sexual, as with indications of forced sex perhaps alongside evidence that the victim was bound beyond the level required for the purpose of restraint. In such a case, the conclusion that the homicide has a sexual element may be reached with a reasonable level of confidence. However, the degree to which the homicide was sexually motivated, rather than carried out to eliminate the only witness to a rape, still requires disclosure from the perpetrator. In some cases, there may be less tangible evidence of a sexual element as when, for example, the victim was killed with her clothes disturbed and underwear cut but without physical evidence of a sexual assault. In this type of case, the conclusion that the homicide was sexually motivated relies on disclosure from the perpetrator alongside the evidence from the crime scene (Podolsky, 1965; Proulx et al., 2007). The

perpetrator's disclosure of their sexual motivation may not be forthcoming as it may be incriminating, or seen to make matters worse, or they are in denial about the sexually abusive aspect of the offense—a state that may endure throughout a custodial sentence and after release (Clarke & Carter, 2000).

There are practical reasons why criminal event evidence may be compromised with respect to determining whether a homicide is sexual. The body may be badly damaged through decomposition or deliberate burning so that it is not possible to gather reliable forensic evidence of sexual assault and torture (Watanabe & Tamura, 2001). A lack of evidence or misinterpretation of available evidence can lead to errors: Meloy (2002) described the case of a perpetrator of a non-sexual murder misleading investigators by staging the crime scene to resemble a sexual homicide. It is likely that in some cases, the lack of evidence and non-disclosure by the perpetrator means that it will never be clear whether or not a homicide was sexually driven.

Crime scene and victim characteristics have been used to help investigators understand the perpetrator's motivation and to aid investigation. The Federal Bureau of Investigation notably discriminated the characteristics and motivations of sexual homicides on the basis of whether their criminal behavior was of an organized or disorganized type (Ressler et al., 1988). Typologies of sexual homicide have also been developed that rely on classifying the perpetrator's motivation: Thus, the offense could be sexually motivated, or stem from anger, or be instrumental in intending to silence the victim (Beech, Fisher, & Ward, 2005; Clarke & Carter, 2000; Keppel & Walter, 1999). The use of typologies may inform assessment strategies and case formulation, helping to identify risk factors for future offending and potential targets for interventions to reduce risk (Perkins, 2007).

When there is no disclosure from the offender, the over-riding issue is the reliable detection of sexual homicides. The identification of discriminatory factors that do not rely on disclosure from the perpetrator, which can reliably indicate that a homicide is sexual in nature, and which are readily available, has potential benefits for forensic investigators and practitioners. Crime scene indication of a sexual homicide could direct the investigation to draw on classifications of this crime (e.g., Beech, Fisher, & Ward, 2005), which could help with identifying suspects for these crimes by looking at the profiles of different types of sexual homicide offered by these classifications. Following conviction, crime scene indication of a sexual homicide could help identify cases where risk of future sexual violence could be important when the offender denies a sexual aspect to the killing. The potential factors for this purpose include the characteristics of the crime scene, features of the victim, and commonly recorded demographic information about the offender (Carter & Hollin, 2010).

The current study took a sample of cases previously identified as non-serial sexual homicides (either during criminal investigation or following post-conviction disclosure) and reviewed the available case records to try to determine easily identifiable information, which would not be reliant on offender interview. The definition of non-serial was only one or two victims without an emotional cool-off period (Proulx, Cusson, & Beauregard, 2007), where the perpetrator had been apprehended and successfully prosecuted. The study focused on male non-serial sexual homicides of adult

females as this is the most prevalent group of perpetrators of this type of crime (Beauregard & Martineau, 2013; Proulx et al., 2007). Subsequently, this will allow for advances in understanding these perpetrators by comparison with others, such as female sexual homicides (e.g., Chan & Frei, 2013; Chan, Frei, & Myers, 2013) or juvenile perpetrators (e.g., Myers & Chan, 2012; Myers, Chan, Vo, & Lazarou, 2010). The study aimed to look for discernible patterns and associations within the data that may serve to delineate sexual homicide that did not rely on disclosure from the perpetrators of the crime. A second aim of the study was to test the hypothesis that the majority of sexual homicide cases can be captured using the Ressler et al. (1988) definition.

Method

Case Identification for Sexual Homicide Sample

Samples of sexual and non-sexual homicide offenses were identified from official United Kingdom Home Office files. The sexual homicide sample was identified by selecting files where the homicide victim was a female aged 14 years or above, there was a convicted male perpetrator, and there was seen to be a sexual connotation to the crime, as judged by Home Office or Correctional Service staff based on there being strong grounds to believe that there was a sexual element associated with the death. Some of these men had been offered a place on a Sex Offender Treatment Program because of the sexual connotation to the homicide. A total of 380 cases were identified. From the 380 cases listed, every second case was marked and numbered to produce a smaller and more manageable sample for the purpose of this study. After excluding duplicate names, there were 200 cases that were then cross-checked with the Lifer Database (a Home Office list of all those serving life sentences) to confirm that the study inclusion criteria had been met. Those cases where the offender had killed more than two people were excluded from the study as serial offenders appear to differ in important ways from non-serial offenders (Carter & Hollin, 2010; James & Proulx, 2014; Proulx et al., 2007).

Cases that met the inclusion criteria were coded until 100 cases had been entered into the data set. This figure was decided on given the resources involved in getting the files and the time taken to code them and what would be a sufficient sample size for the purposes of this study. To ensure a high degree of certainty of a sexual element associated with the killing, the study included only those cases where there was disclosure from the perpetrator, clear physical evidence of non-consensual sexual behavior, or a sexual conviction/sexual offense charges left to remain on file at the time of conviction. Cases where sexual assault alongside the homicide was suspected but without corroboration from the perpetrator or physical evidence were not included. This was to ensure a high probability that sex was attached to the killing, which would allow greater confidence in determining the factors most characteristic of the sexual homicides in the sample, and whether these are the same characteristics highlighted by Ressler et al. (1988). Following this procedure, a final total of 65 cases were included

Table 1. Factors Indicating That Sex Was Attached to Homicide ($N = 65$).

Factor	Cumulative N
Convicted for sexual offense alongside the killing	14
Sexual offenses or charges to remain on file	18
Perpetrator disclosed forced anal sex	21
Perpetrator disclosed forced felatio sex	22
Perpetrator disclosed forced vaginal sex	36
Perpetrator disclosed forced foreign object penetration	37
Perpetrator disclosed forced digital penetration	42
Perpetrator disclosed forced anal sex since imprisonment	—
Perpetrator disclosed forced felatio sex since imprisonment	—
Perpetrator disclosed forced vaginal sex since imprisonment	53
Perpetrator disclosed forced foreign object since imprisonment	56
Perpetrator disclosed forced digital since imprisonment	57
Perpetrator disclosed forced sexual contact following treatment	62
Evidence of intercourse post mortem	64
Evidence of sexual behavior other than intercourse with unconscious or dead victim	65

in the current study. The various ways in which sex was attached to the killing are shown in Table 1.

Matching Process

The Home Office records were also used to case-by-case match the sample of non-sexual homicides who, like the sexual homicides, had killed a female victim aged 14 years or older but were serving a conviction of murder or manslaughter where their crime was not assessed as having a sexual element. Those cases where the offender had killed more than two people who met these criteria were excluded from the study. Further matching criteria consisted of date of birth and date of conviction. When an exact match was unavailable for either criterion, the next closest match was accepted and a Mann–Whitney U test confirmed that there was no significant difference on age at the time of offense between sexual homicides ($Mdn = 26$, $n = 65$) and non-sexual homicides ($Mdn = 25.5$, $n = 64$), $U = 2,013$, $z = -.316$, $p > .05$.

Data Collection Strategy

Cases were coded for the presence or absence of information related to the background of the perpetrator, the crime scene, the victim, and post-offense information. Information on the coding is provided by Carter, Mann, and Wakeling (2007) where the sexual homicide data set was used in another study. In addition, items from the Risk Matrix 2000 risk assessment (Thornton et al., 2003) were also coded to collect information concerning previous and current conviction data.

Analytical Strategy

The criminal history and demographic information relating to sexual homicides and non-sexual homicides were compared using chi-square tests. The predicative validity of the factors identified as significant in distinguishing sexual homicides from non-sexual homicides was then investigated through logistic regression.

There is some variation, ranging from 10 to 15 cases for each predictor variable studied (Field, 2005), in the guidance on the sample size required to carry out a meaningful logistic regression. In addition to the number of cases used per sample, each variable entered should have a minimum of 15 cases being present, and if there are fewer than this figure, the variable should not be entered into the analysis as it may produce an unsafe regression model (Field, 2000).

The method of entry for all analysis was backward stepwise as this was an exploratory study (Field, 2005). Variables considered to be very similar to the dependent variable should be excluded from analysis because they could lead to unsafe models but this was not the case in the present study. Therefore, prior to the binary logistic regression, correlation coefficients (Spearman's rho) were calculated for all items in Tables 1 to 4 to establish whether there were any high levels of correlation between items that could unduly influence the logistic regression. The following items were not included in the model because they were correlated with other items: pre-conviction for a stranger victim sex offense, victim knew perpetrator, victim knew perpetrator well, victim was a stranger, victim was living with parents, met victim (stranger) socially, fatal ligature strangulation, fatal manual strangulation, evidence weapon used, stabbing involved, and evidence victim bound. Finally, dummy variables were created to allow predictors with three or more categories to be transformed into dichotomous variables (Howitt & Cramer, 2005). In effect, dummy variables were calculated whenever there was a "missing data" category.

A logistic regression was conducted to determine the predictive value of the variables shown in Tables 2 to 4 after taking out items that correlated highly with other items as outlined above. The variables entered were previous sexual appearance, strangulation involved, ligature present at crime scene, ligature left on body, evidence weapon used, evidence weapon taken to scene, stabbing involved, and multiple stab wounds (more than three).

The variable death caused by combination of methods was not entered into the model because there were less than 15 cases.

Results

The groups were largely comparable on adult characteristics variables (Table 2), apart from a significant difference in the offenders' criminal history. Approximately half (50.8%) of the sexual homicides had at least one previous appearance for a sexual offense compared with the non-sexual homicides who infrequently (14.1%) had previous sexual offenses, $\chi^2(2, N = 129) = 23.42, p < .001, V = .43$. A sexual appearance is when someone appeared in court for an offense where there was a sexual element or motivation to the offense. This includes sexual convictions and those with an underlying sexual motivation, for example, stealing women's underwear to gratify a sexual fetish (Thornton, 2003).

Table 2. Criminal History and Adult Characteristics (Percent in Parentheses).

	Sexual homicides (n = 65)	Non-sexual homicides (n = 64)	χ^2	Effect size
Pre-conviction stranger sex offense***	23 (35.4)	5 (7.8)	14.43	.33
Previous sexual appearance***			71.38	.74
None	32 (49.2)	55 (85.5)		
One	15 (23.1)	8 (12.5)		
Two or more	18 (27.7)	1 (1.6)		
Non-contact sex offense	6 (9.2)	2 (3.1)	2.07	.13
More than 3 previous convictions	38 (58.5)	36 (56.3)	0.06	.02
Burglary prior to index offense	32 (49.2)	30 (46.9)	0.07	.02
Violence against women	22 (33.8)	18 (28.1)	0.49	.06
Left school without qualifications	51 (78.5)	41 (65.1)	2.83	.15
Generally been employed	41 (63.1)	32 (50)	2.25	.13
Has been married for 2 years or more	21 (32.3)	28 (43.8)	1.79	-.12
Single	38 (58.5)	31 (48.4)	1.3	.10
In a relationship prior to the killing	26 (40.0)	33 (51.6)	1.74	-.12
Has a child or children	29 (44.6)	34 (53.1)	0.94	-.09

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Victim Characteristics and Victim Access (Percent in Parentheses).

	Sexual killers (n = 65)	Non-sexual killers (n = 64)	χ^2	Effect size
Victim aged 14-49 years	45 (69.2)	43 (67.2)	0.06	.02
Victim knew perpetrator***	33 (50.8)	54 (84.4)	16.59	.36
Victim knew perpetrator well***	24 (36.9)	47 (73.4)	17.38	.37
Victim was a stranger***	32 (49.2)	10 (15.6)	16.59	.36
Victim was living with parents*	18 (27.7)	8 (12.5)	4.63	.19
Victim was married (not to perpetrator of homicide)	12 (18.5)	10 (15.6)	0.18	.04
Victim was widowed	12 (18.5)	9 (14.1)	0.46	.06
Victim was living with husband	10 (15.4)	11 (17.2)	0.08	.02
Victim known through work	8 (12.3)	4 (6.3)	1.4	.10
Victim lived in close proximity (within a mile of where perpetrator lived)	19 (29.2)	24 (37.5)	0.99	.09
Attacked victim in the street	14 (21.5)	10 (15.6)	0.75	.08
Offense took place in other location	12 (18.5)	8 (12.5)	0.88	.08
Called on victim as a friend	15 (23.1)	10 (15.6)	1.15	.09
Broke into victims' home	12 (18.5)	13 (20.3)	0.07	.02
Met known victim socially	7 (10.8)	2 (3.1)	2.90	.15
Met socially (stranger)**	10 (15.4)	0 (0)	10.67	.29

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Injuries, Means of Death, and How the Body Was Found (Percent in Parentheses).

	Sexual killers (n = 65)	Non-sexual killers (n = 64)	χ^2	Effect size
Strangulation involved***	47 (72.3%)	11 (17.2%)	39.59	.55
Death caused by strangulation***	34 (52.3%)	10 (15.6%)	20.40	.40
Fatal ligature strangulation*	16 (24.6%)	6 (9.4%)	5.3	.20
Fatal manual strangulation*	18 (27.7%)	8 (12.5%)	4.63	.19
Ligature used during offense***	25 (38.5%)	5 (7.8%)	16.97	.36
Ligature present at crime scene**	21 (32.3%)	7 (10.9%)	8.67	.26
Ligature left on body**	16 (24.6%)	3 (4.7%)	10.2	.28
Evidence weapon used***	15 (23.1%)	50 (78.1%)	39.1	.55
Evidence weapon taken to scene**	11 (16.9%)	25 (39.1%)	7.86	.25
Stabbing involved***	11 (16.9%)	35 (54.7%)	20.05	.39
Multiple stab wounds (more than 3)**	8 (12.3%)	21 (32.8%)	7.78	.25
Evidence of extreme injuries	36 (55.4%)	31 (48.4%)	0.62	.07
Death by combination of methods*	13 (20.0%)	4 (6.3%)	5.33	.20
Evidence victim punched	20 (30.8%)	14 (21.9%)	1.31	.10
Abrasions	16 (24.6%)	17 (26.6%)	0.06	.02
Evidence victim hit with an object	14 (21.5%)	16 (25%)	0.22	.04
Evidence victim kicked	7 (10.8%)	7 (10.9%)	0.00	.00
Broken bones	14 (21.5%)	14 (21.9%)	0.00	.00
Other injuries	24 (36.9%)	28 (43.8%)	0.63	.07
Evidence victim bound*	10 (15.4%)	2 (3.1%)	5.75	.21
Body found in a home	35 (53.8%)	42 (65.6%)	1.86	.12
Body moved to another location	9 (13.8%)	9 (14.1%)	0.00	.00

* $p < .05$. ** $p < .01$. *** $p < .001$.

The characteristics of the victims and the means by which the perpetrators gained access to the victims are shown in Table 3. Sexual homicides were more likely than non-sexual homicides to attack a stranger $\chi^2(1, N = 129) = 16.59, p < .001, phi = .36$. The majority of non-sexual homicides knew their victim (perpetrator and victim both knew each other at least 24 hr before the homicide) and in many cases were likely to know their victim well (e.g., spoke on first name terms and had quite regular contact with each other prior to the homicide). Despite this, as detailed in Table 3, overall, the victims of both groups were accessed in similar ways.

As shown in Table 4, strangulation was a feature of sexual homicides as opposed to non-sexual homicides, $\chi^2(1, N = 129) = 39.59, p < .001, phi = .55$. In the case of sexual homicide, more than one half of the victims died by either manual or ligature strangulation. In contrast, stabbing was more common among non-sexual homicides, $\chi^2(1, N = 129) = 20.05, p < .001, phi = .39$. Some kind of weapon was used in more of the non-sexual homicides compared with the sexual homicides, $\chi^2(1, N = 129) = 39.09, p < .001, phi = .55$. Non-sexual homicides were also more likely to take a weapon to the crime scene, $\chi^2(1, N = 129) = 7.86, p = .005, phi = .25$, but were less likely to kill

Table 5. Sexual Homicide Indicators.

	Sexual killers (N = 65)
Body found with underwear removed	43.1%
Outer clothes removed	23.1%
Upper half of body exposed	24.6%
Bra left on but disturbed	15.4%
Completely naked	23.1%
Clothing torn ripped	16.9%
Underwear torn ripped	16.9%
Underwear around ankles	10.8%
Clothing found next to body	27.7%
Branch or stick inserted into vagina or anus	1.5%
Evidence of vaginal sex	63.1%
Evidence of anal sex	21.5%
Semen found in vagina	35.4%
Semen found near victim	13.8%
Semen found on victim	13.8%
Semen found in anus	13.8%

the victim by using a combination of methods, $\chi^2(1, N = 129) = 5.33, p < .02, phi = .20$. Furthermore, sexual homicides bound their victims more frequently than non-sexual homicides, $\chi^2(1, N = 129) = 5.75, p < .02, phi = .21$.

To better understand the behavior of perpetrators of sexual homicide, the analysis also examined crime scene evidence of sexual behaviors (Table 5). Evidence of vaginal sex was found in the majority of cases (63.1%), and the victim's body was found with underwear removed in more than one third of the cases (43.1%).

To consider the characteristics of sexual homicides more frequently found to be a feature, those present for at least 30% of the sample are shown in Table 6. How the body was found and forensic evidence were characteristics only coded for sexual homicide cases.

The logistic regression estimation was terminated at iteration number 6 because parameter estimates changed by less than .001. The variables produced a satisfactory model fit (i.e., discrimination between the outcome groups) as measured by the Hosmer and Lemeshow Test: $\chi^2(6, N = 129) = 2.09, p > .05$. This model was significantly better than a constant-only model containing only the intercept, but no predictor variables: $\chi^2(7, N = 129) = 117.95, p < .05$. The Nagelkerke *R* square at Step 6 was 0.81, indicating that 81.0% of variables that account for whether it was a sexual homicide was explained by this model. The correct classification of cases overall in the final step was 90.5%, although it was slightly better for non-sexual killers (95.3%) as compared with sexual killers (85.5%).

Table 7 shows how the predictor variables contributed to the model, along with the Wald and Exp(B) statistics for the variables. The overall model was significant with three significant predictors to determine whether or not it was a sexual homicide; these significant variables were three or more appearances, ligature present at the crime scene (odds ratio = 33.95), and weapon used (odds ratio = 20.10).

Table 6. Summary of Characteristics Coded as Present for at Least 30% of Sexual Homicides.

Characteristic type	Characteristic	Sexual homicides (n = 65)	Non-sexual homicides (n = 64)	
Demographics	Left school without qualification	78.5%	65.1%	
	Generally employed	65.7%	50%	
	Single	58.5%	48.4%	
	Has a child or children	44.6%	53.1%	
	In a relationship prior to the killing	40.0%	51.6%	
Previous convictions	More than 3	58.5%	56.3%	
	At least one sexual appearance	50.8 %	14.15%	
	Burglary	49.2%	46.9%	
	Stranger victim for a sexual offense	35.4%	7.8%	
	Violence against a woman	33.8%	28.1%	
Victim access	Victim aged 14-49 years	69.2%	67.2%	
	Victim knew perpetrator well	36.9%	73.4%	
	Victim lived in close proximity	29.2 %	37.5%	
	Strangulation involved	72.3%	17.2%	
Method of death and injuries	Evidence of extreme injuries	55.4%	48.4%	
	Death by ligature or manual strangulation	50.8%	6.3%	
	Ligature used during the offense	38.5%	7.8%	
	Other injuries	36.9%	43.8%	
	Victim punched	30.8%	21.9%	
	How body found and forensic evidence	Lower half of body exposed	63.1%	0.0%
		Body found in a home	53.9%	0.0%
Body found somewhere other than a home, building not residential or a field.		32.3%	0.0%	
Underwear removed		43.1%	0.0%	
Ligature already present at crime scene (not brought by perpetrator)		32.3%	0.0%	

Discussion

When comparing sexual homicides with non-sexual homicides on demographic information and their criminal histories, generally, these perpetrators do not differ significantly. There was no significant difference in relationship status prior to the offense, which remained when looking at how many of the relationships were where the perpetrator was married. At the time of the offense, approximately one half of both groups of killers were in some type of relationship. However, these were not necessarily

Table 7. Prediction of Whether or Not a Non-Serial Sexual Homicide to Overall Significant Factors.

Predictor	B	SE	Wald	Sig.	Exp(B)	95% CI for Exp(B)	
						Lower	Upper
More than 3 previous convictions			25.506	0.00			
More than 3 previous convictions(1)	18.45	28,420.80	0.00	1.00	1.03E8	0.00	
More than 3 previous convictions (2)	14.16	28420.80	0.00	1.00	1.41E6	0.00	
More than 3 previous convictions (3)	-5.77	31374.71	0.00	1.00	0.00	0.00	
More than 3 previous convictions (4)	13.13	28,420.80	0.00	1.00	5.05E5	0.00	
Strangulation involved in the offense	1.39	0.81	2.94	0.09	4.03	0.82	19.81
Ligature present at the crime scene	3.53	1.57	5.01	0.03	33.95	1.55	743.01
Weapon used	-2.32	0.90	6.57	0.01	0.10	0.02	0.58
Constant	-18.89	28,420.80	0.00	1.00	0.00		

Note. The numbers in brackets refer to the labelling of dummy variables when these have been created. SE = standard error; CI = confidence interval.

*Significant at $p < .05$.

long-term, marital-type relationships given that the minority of sexual and non-sexual homicides, respectively, had been married for 2 years or more. Approximately one half of the perpetrators in both groups had generally been employed. It was unusual among either group not to find previous convictions. Indeed, both perpetrators of sexual homicide and non-sexual homicides had more than three previous convictions, which were likely to include burglary and violence against women, although previous charges for sexual offenses were more frequently found among sexual killers. Overall, this pattern could mean that demographic factors are not particularly useful for identifying sexual homicides but that a history of sexual offending may be expected more so for sexual homicides than non-sexual homicides, and the logistic regression showed that more than three previous sexual convictions was shown significantly to increase the likelihood that the killing was a sexual homicide. This lack of difference in demographic information is in line with the only study published to date to our knowledge directly comparing sexual killers and non-sexual homicides, which found no significant difference in the employment records and marital status of their samples (Langevin, Ben-Aron, Wright, Marchese, & Handy, 1988).

There were significant differences between the groups of perpetrator when considering their relationships to their victims. Non-sexual homicides tended to be carried out against a victim well known to the perpetrator. Sexual homicide perpetrators were more likely to have a stranger victim, although just more than one half of the sexual

homicide perpetrators also knew their victim. This pattern may be expected given that typology of sexual homicide and pathways studies note that angry sexual killers are likely to know their victim (e.g., Beauregard, Proulx, & St-Yves, 2007; Stefanska, Carter, Higgs, Bishopp, & Beech, 2015).

Details from the crime scene evidence indicated that both sexual and non-sexual homicide victims were most likely to be found in a home. There was a high frequency of stabbing among non-sexual homicides, whereas, consistent with previous research (Carter & Hollin, 2010; Langevin et al., 1988), sexual homicide perpetrators were most likely to strangle their victims. This is despite the presence of a weapon in more than one fifth of the cases of sexual homicide, and death being caused by a combination of methods in sexual homicides but rarely in non-sexual homicides. One hypothesis is that perpetrators of sexual homicide stab their victim having failed to cause death by strangulation, or they might wound the victim to gain compliance and strangulation presents a behavioral preference in their *modus operandi*. Something already at the crime scene was drawn on when a ligature was used, again indicating the possibility that this was to assist strangulation as a preferred method of death. The use of a ligature at the crime scene was shown significantly to increase the likelihood that the killing was a sexual homicide. Adding to the possibility that manual strangulation is a characteristic of sexual homicides is that the presence of a weapon was shown to significantly increase the likelihood that the killing was a non-sexual homicide. Although a fatal outcome to a sexual assault has shown to be more likely if a weapon is present (Chéné & Cusson, 2007; Mieczkowski & Beauregard, 2010), this is not a consistent finding (Higgs, Carter, Stefanska, & Glorney, 2015). The role that strangulation plays in terms of motivation, including by ligature, needs to be researched further. Some sexual homicide perpetrators bound their victims, whereas this behavior was highly uncharacteristic of non-sexual homicides.

Although the current study includes a large sample of sexual homicide perpetrators and a comparison group of non-sexual homicide perpetrators, the nature of how the information was collected did not allow thorough exploration of the actual motivations for the offenses. It is possible that more or other differences would have been identified if the motivation for the killing was known. In the current study, no significant difference in the age of the victim was found for the sexual and non-sexual killers. Shackelford (2002) found an over-representation of what he termed “young, reproductive-aged” women in terms of victims of rape-murder with the opposite being true for victims of theft-murder. Without information about motivation, for example, whether the age of the victim was a factor in the offense for both the sexual homicide and the non-sexual homicides, it is not possible to consider further why no significant difference in age of victim between the two perpetrator groups was found in the current study. In addition, the base rate of sexual homicide is low, so to collect a large sample size, it is necessary to look at cases across a number of generations where there could be changes in trends, for example, leaving school without qualification could be more common in older generations.

The most prominent indicators of a sexual element to a killing were that victims were found with the lower half of their body exposed and evidence of sexual acts including vaginal sex. This finding supports the hypothesis that adopting the Ressler et al. (1988)

definition of sexual homicide to non-serial killers is useful when attempting to identify the likelihood of a sexual element to the killing from evidence available at the crime scene. Where the sexual element to the offense remains ambiguous, evidence of strangulation could act as a trigger to further investigate this in non-serial homicide cases. Furthermore, this study suggests that in the majority of cases of sexual homicide, the perpetrator will have a previous conviction for a sexual offense. This previous conviction can be used to discuss sexual interests and attitudes to sex to glean information that could be helpful in then discussing the build up to the sexual homicide. At the same time, it is important to note that in some cases, sexual homicide perpetrators will not have any sexual previous convictions. Perkins (2007) recommends taking a comprehensive history, which allows plenty of scope to cover and consider sexual issues at whatever stage the assessment is being undertaken, for example, for the courts during prosecution or the parole board, if this is not included. Perkins also suggests "where interviewees are reluctant to provide information, it can sometimes be useful to present them with a number of possible scenarios for their offending, and doing so in the spirit of helping them remember and explain" (p. 97). This approach is arguably most helpful in getting offenders to talk about their offense. However, care needs to be taken not to be leading or suggestive in order to avoid inaccurate accounts being provided.

Limitations

This was an exploratory study, and although it provides a framework for future research to further examine the distinct nature of sexual homicide, it could be that matching on contextual factors concerning the crime such as the relationship with the victim, whether a weapon was used, or controlling for sexual homicide type (e.g., Stefanska et al., 2015) would uncover different results.

The high number of sexual killers having at least one previous sexual appearance for a sexual crime should be interpreted with caution. Although a strength of the study was that ambiguous cases, in terms of whether it was a sexual homicide, were excluded, the sample may not be representative of all sexual homicides, for example, someone who seeks sexual gratification from strangling but does not otherwise sexually assault or interfere with the victim. In addition, there could be an information coding bias if a sexual homicide was suspected at the time of detection of the crime making comparison of evidence with non-sexual killing less reliable. For example, if there was an indication of sexual activity with the victim, then evidence of a disturbance of the victim's clothing may be more likely to be recorded as it adds weight that the killing was sexual. This may not be the case when a sexual homicide is not suspected. Although the cases were matched on the gender of victim and that they were above 14 years and the perpetrators were non-serial, we were unable to comment on the specific circumstances of either the sexual or non-sexual homicides. The availability of this contextual information could be important for considering differences and similarities we have found. For example, it is possible that there was a sexual element to some of the non-sexual homicide cases we considered. The current study has reported a higher number of previous convictions for a sexual appearance than has been indicated in

large-scale studies of sexual homicide that have considered previous, sexual convictions (e.g., Beauregard, & Martineau, 2013). This could be explained in part because the current study considered sexual appearances as opposed to convictions or because the current sample was drawn from a U.K. sample. Finally, although this study considered a non-serial sample, it is possible that some perpetrators had more victims that they had not been apprehended for.

Implications

Forensic practitioners should remain alert to the characteristics identified in this study when assessing homicide offenders who meet Ressler et al.'s (1988) definition but fail to disclose a sexual motivation or element to the offense. That is, this type of study can be drawn on in clinical practice to generate hypotheses that can be explored with the offender in forensic interview. Furthermore, homicide perpetrators who do not disclose a sexual element but meet the characteristics identified in this study could support parole decisions or sentence planning around considering risk of sexually abusive behavior and a sexual motivation to the homicide.

From a research perspective, it is necessary to avoid making assumptions that perpetrators of crimes tend to specialize in either sexual or non-sexual offending (Lussier, 2005; Lussier & Cale, 2013). For example, studies have established typologies of sexual homicide within which the killing plays different functional roles. Sexual homicide perpetrators can be driven by sexual motivations or sexual deviance, but others are driven to kill due to grievance thinking. For some sexual homicide perpetrators, sexual arousal and killing are not directly related (Stefanska et al., 2015). The sexual element can represent a salient factor in forensic case formulation, whereas for others, although a homicide occurred within a sexual context, little is yet known about whether these offenders may be as likely to kill in a non-sexual situation. Further research would be useful to examine those cases of sexual homicide where there was no sexual motivation and only an indirect link between sex and killing, by comparison with non-sexual homicide. In addition, consideration of the exact nature of previous sexual convictions as well as those previous convictions could usefully be explored to determine whether it is possible to identify any trends indicative of offense escalation. Patterns of case escalation could indicate when forensic staff may take action to try and prevent offenders from going on to commit sexual homicides.

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