

# **Body Dismemberment in Sexual Homicide Cases: Lust Murder or Rational Decision?**

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## Introduction

Sexual homicide (SH) is a rare crime that represents only a small proportion of homicides committed every year (see Beauregard & Martineau, 2017 for a review). Despite the rarity of these offenses, SHs often monopolize media headlines and have the unique ability to provoke wide-spread fear in the community due in part to the apparent randomness of victim selection, but also because they are often characterized by gratuitous brutality as well as a combination of irrational behaviors (Roberts & Grossman, 1993). In some cases, certain acts committed during the crime-commission process become even more shocking and irrational than the murder itself. One of the most exemplary among these acts is the criminal dismemberment of the victim's body, which is considered to be the ultimate act of aggression (Holmes, 2017). This act, whatever its motivation, is not only shocking but also demoralizing as it constitutes a way to deny the victim's integrity (Black et al., 2017).

Holmes (2017) noted that body dismemberment can be the outcome of various situations (i.e., accident, suicide, murder) and suggested that "criminal dismemberment" is a more appropriate term to reference dismemberment that is specific to homicide. Criminal dismemberment is defined by Stone and Brucato (2019, p. 83) as "the entire removal, by any means, of a large section of the body of a living or dead person, specifically, the head (also termed decapitation), arms, hands, torso, pelvic area, legs, or feet". It should be distinguished from mutilation, which is defined as "the removal or irreparable disfigurement, by any means, of some smaller portion of one of those larger sections of a living or dead person. The latter would include castration (removal of the testes), evisceration (removal of the internal organs), and flaying (removal of the skin)" (Stone & Brucato, 2019, p. 83). Information related to the prevalence of criminal dismemberment is scarce. Several authors simply mention that this act is rare for murder in general (Black et al., 2017; Di Nunno et al., 2006; Häkkänen-Nyholm et al., 2009; Holmes, 2017; Konopka et al., 2006; Konopka et al., 2007; Wilke-Schalhorst et al.,

2019). As to SH specifically, studies conducted in different countries indicated that the rate of criminal dismemberment varies between 5% to 20% (see Beauregard & Martineau, 2013; Beauregard & Proulx, 2002; Beauregard et al., 2008; Chopin & Beauregard, 2019; Darjee & Baron, 2013; Sea et al., 2019).

Previous studies have shown that two principal motivations were associated to criminal dismemberment: on one hand *defensive* dismemberment is thought to be associated with the offender attempting to avoid detection (see Dogan et al., 2010; Holmes, 2017; Konopka et al., 2007; Petreca et al., 2020; Püschel & Koops, 1987; Sea & Beauregard, 2019; Wilke-Schalhorst et al., 2019; Ziemke, 1918), whereas on the other hand, *offensive* dismemberment is associated with sexual gratification related to the act itself (e.g., (Dogan et al., 2010; Holmes, 2017; Petreca et al., 2020; Püschel & Koops, 1987; Ziemke, 1918). Despite being mentioned as a characteristic of SH, to date criminal dismemberment has never been empirically analyzed in this context. Although this behavior has been investigated in some case reports and in a few empirical studies based on heterogeneous samples of homicides (including mostly domestic murders; see e.g., Di Nunno et al., 2006; Dogan et al., 2010; Konopka et al., 2006; Konopka et al., 2007; Petreca et al., 2020; Wilke-Schalhorst et al., 2019), no studies have looked at the crime-commission process associated with this specific behavior in SH. In order to better understand criminal dismemberment, the current study analyzes the crime-commission process of SH cases involving criminal dismemberment to determine the most likely motivations pursued by sexual homicide offenders (SHOs).

### **Characteristics of Criminal Dismemberment Cases**

Although several case studies have been published on the topic of criminal dismemberment, it was decided to limit our literature review to studies presenting findings on at least 10 cases. This was done to minimize the biases associated with extreme case studies.

It is important to note here that samples used in these studies are mixed and included both sexual and non-SH cases.

As such, findings from these studies reveal that victims of criminal dismemberment are more often females who are between 20 and 59 years old (Petreca et al., 2020; Wilke-Schalhorst et al., 2019). Specific to SH, Chopin and Beauregard (in press) found that compared to females, males were more frequently victim of criminal dismemberment, while Beauregard et al. (2008) identified that child victims of SH were more likely to have their bodies dismembered compared to adult victims. Additionally, Wilke-Schalhorst et al. (2019) identified a high degree of diversity among the victims' professions, noting that 16% (7/51) were sex trade workers.

Research conducted on heterogenous samples of criminal dismemberment reported that in most cases offenders and victims were acquaintances (Konopka et al., 2007; Rydzek, 1984; Wilke-Schalhorst et al., 2019). For instance, Wilke-Schalhorst et al. (2019) found that in most cases offenders and victims lived in a close social environment and for 9.23% of cases they had been sexually intimate. They also identified that in 30%(15/36) of cases a sharp object was used to kill the victim, while offenders asphyxiated their victims in 26.82% (13/36) of the cases (Wilke-Schalhorst et al., 2019). Petreca et al. (2020) found that in most cases the murder of the victim and the dismemberment constituted two distinct acts. They also identified that 31% (31/100) of the cases were characterized by ante-mortem torture, while necrophilia activities were observed in 14% (14/100) of the cases (Petreca et al., 2020). Two studies mentioned that criminal dismemberment was more likely to be associated with an organized crime scene (Beauregard & Martineau, 2017; Petreca et al., 2020; Saville & Ruttly, 2007). As to the crime locations, findings showed that dismemberment occurred more often in the offenders' or victims' residence, or in a shared apartment (Konopka et al., 2007; Rajs et

al., 1998; Wilke-Schalhorst et al., 2019). Konopka et al. (2007) found that in most cases criminal dismemberment was performed at the same location that the victim was murdered.

### **Criminal Dismemberment and Offender Motivation**

The literature on criminal dismemberment is scarce and has mainly focused on forensic and medico-legal issues. Case studies and empirical studies have discussed dismemberment that occurred in the general context of homicide. Previous studies generally included heterogeneous samples of homicide (i.e., domestic and extra familial, motiveless or not, sexual and non-sexual) to determine the main characteristics as well as the motivations underlying the criminal dismemberment. Two principal motivations were discussed explaining this extreme behavior. First, dismemberment could be seen as a rational behavior to avoid police detection. Second, it could be considered as part of a sexual deviance and consequently associated with the offender's sexual pleasure.

### **Dismemberment as a Strategy to Avoid Police Detection**

Previous studies have suggested that the criminal dismemberment of a victim's body is primarily motivated by the offender's desire to avoid police detection (see Dogan et al., 2010; Holmes, 2017; Konopka et al., 2007; Petreca et al., 2020; Püschel & Koops, 1987; Sea & Beauregard, 2019; Wilke-Schalhorst et al., 2019; Ziemke, 1918). Also labeled as defensive dismemberment, this behavior allows murderers to avoid or delay police detection. First, victim's body dismemberment can be motivated by the offender's intention to facilitate body disposal and concealment (Holmes, 2017; Konopka et al., 2007; Petreca et al., 2020). On one hand, Di Nunno et al. (2006) noted that corpses are heavy to transport and therefore, cutting it into several parts makes it easier to move from the crime scene to a different location. On the other hand, the distribution of body parts at different locations makes the criminal investigation more complex (Holmes, 2017; James & Nordby, 2005).

Second, the dismemberment of specific parts of the victim's body - also known as selective dismemberment - may be motivated by the perpetrator's intention to conceal the identity of the victim (Dogan et al., 2010; Häkkänen-Nyholm et al., 2009; Holmes, 2017). This behavior has been associated with offenders presenting prior criminal experience (see Canter & Allison, 1999; Holmes, 2010) as their contact with the criminal justice system educated them to evidentiary procedures (Chopin et al., 2020).

Very few studies empirically have tested the defensive dismemberment hypothesis. In their study, Konopka et al. (2007) found that defensive dismemberment was the dominant motivation for most of the murder cases included in their sample. Of the 23 cases of criminal dismemberment they analyzed, 73.91% (17/23) were motivated by the need to remove the victim's body from the crime scene to another location. It is noteworthy that for the two cases of SH included in their sample, Konopka et al. (2007) also identified the defensive dismemberment motivation. Wilke-Schalhorst et al. (2019) confirmed these results in a subsequent study. Using a sample of 51 criminal dismemberment cases that occurred between 1959 and 2016 in Hamburg, they found that 60% (30/51) were motivated by defensive dismemberment. Furthermore, in one of the most comprehensive study on criminal dismemberment, Petreca et al. (2020) analyzed a sample of 100 criminal dismemberment cases that occurred in the United States. They identified that 60% (60/100) of perpetrators were motivated by defensive dismemberment and indicated that elimination of evidence was the primary motivation (Petreca et al., 2020).

### **Dismemberment as Part of a Sexual Deviance**

Other studies have also suggested that criminal dismemberment could be motivated by the presence of paraphilia and sexual deviance (Dogan et al., 2010; Holmes, 2017; Petreca et al., 2020; Püschel & Koops, 1987; Ziemke, 1918). In these cases, the need to avoid police detection is not important; instead it is the search for sexual gratification related to body

dismemberment that is pivotal. This motivation associated with criminal dismemberment is the expression of paraphilic behaviors driven by the search for sexual gratification. The criminal dismemberment can be the central or a secondary act of the sexual deviance.

As a central act, Holmes (2017) noted that individuals found sexual gratification in the body dismemberment of their victims. This paraphilic behavior is considered as an extreme form of picquerism (i.e., gratification from the process of penetration such as cutting, biting or stabbing) and could be associated with lust murder which is a term describing homicides where offenders find sexual gratification in the act of killing (Holmes, 2017). This category of SH is also associated with a great diversity of sadistic acts (e.g., extreme mutilation) (Holmes & Holmes, 2002b; Purcell & Arrigo, 2006).

As a secondary act in search of sexual gratification, criminal dismemberment is associated with erotophonophilia (i.e., sexual gratification found in the act of committing murder). This paraphilia is often associated with amputation of limbs or breasts, as well as the dissection and the evisceration of victims' bodies (Holmes & Holmes, 2002c). Studies mentioned that criminal dismemberment is also associated with necrophilia (i.e., sexual gratification to perpetrate sexual acts with corpses or body parts) (Aggrawal, 2009, 2010; Holmes, 2017).

### **Aim of Study**

The analysis of previous studies focusing on criminal dismemberment shows that the research on this topic is scarce, particularly regarding offender's underlying motivations. Studies have used very heterogeneous samples of cases and have provided descriptive observations mostly associated with domestic homicides. To the best of our knowledge, the empirical analysis of victim's dismemberment in SH cases has never been undertaken. Sexual homicide is a distinct type of homicide with specific crime-commission processes and motivations, and it should be analyzed separately from other types of crimes (Beauregard et

al., 2018; Healey et al., 2016). Related to the crime-commission process, previous studies have suggested the existence of two main motivations associated with criminal dismemberment: defensive (i.e., avoid/delay police identification) and offensive (i.e., part of the deviant process). Due to the lack of previous empirical studies specifically examining criminal dismemberment in SH, this study is exploratory in nature. This study aims to explore the crime-commission process of SH where criminal dismemberment was perpetrated. By looking at various components of the crime-commission process, we attempt to determine which crime behaviors were most likely to be associated with criminal dismemberment.

## **Methodology**

### **Data**

*Sample.* The sample used in this study comes from the Sexual Homicide International Database (SHIELD). This database includes 772 solved and unsolved cases of extra familial SH that occurred in France and Canada between 1948 and 2018. All the information included in this database were collected with the same tool (for an exhaustive description of the database methodology see Chopin & Beauregard, 2019). SH cases were identified using the FBI definition provided by Ressler et al. (1988) stating that for a homicide to be considered as sexual, it has to present at least one of the following characteristics at the crime scene: victim's 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; evidence of substitute sexual activity, interest, or sadistic fantasy. As the FBI definition has been criticized for potentially presenting false positives (see Beauregard & Martineau, 2017; Kerr et al., 2013; Stefanska et al., 2016), all cases included in SHIELD present at least two criteria of the SH definition. Information included in this database comes from criminal investigation files and expert reports provided by forensic psychologists, coroners, and forensic scientists.



For the purpose of this study, we decided to use only solved cases in order to include more detailed information. Consequently, we selected 662 solved cases of extra familial SH, including 77 cases where the victims' bodies were dismembered and 585 cases without dismemberment. The offender acted alone in all cases included in the current study. SHOs included in the sample are all men, who were on average, 30.49 years old (SD = 10.24, range = 15 to 68)<sup>1</sup>, and the majority were in a relationship (55.44%) at the time of the crime. Few men possessed a sexual collection (14.65%) or reported sexual dysfunctions (11.32%). The majority used alcohol/drugs prior to the crime (55.89%), while only a few presented as having a socially isolated lifestyle (21.45%). One third of the SHOs had prior criminal convictions (31.41%).

## **Measures**

*Dependent variable.* We used one dichotomous variable to distinguish cases where SHOs dismembered the victim's bodies and those who did not (0 = absence; 1 = presence).

Dismemberment was operationalized using Stone and Brucato's (2019) definition: "the entire removal, by any means, of a large section of the body of a living or dead person, specifically, the head (also termed decapitation), arms, hands, torso, pelvic area, legs, or feet" (pp. 83).

*Independent variable.* The choice of independent variables included in this study have been mainly driven by previous studies focusing both on criminal dismemberment and SH (Konopka et al., 2007; Petreca et al., 2020; Wilke-Schalhorst et al., 2019). We used a total of 48 independent dichotomous variable to answer our research questions. Based on the literature review this set of variables were divided into five blocks: victim selection, sexual behaviors, non-sexual behaviors, body recovery and FAS characteristics, as well as and crime-related locations.

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<sup>1</sup> Among all these characteristics, we observed only one significant difference between SHO involved in criminal dismemberment and thus who did not. We found that SHO who dismembered their victims' bodies were older (33.88 vs 30.03 yo;  $U = 17848$ ,  $p = .003$ ,  $r = .11$ ).

*Victim selection.* Previous studies have shown that victims' gender, age and lifestyle were related to the act of criminal dismemberment (see Beauregard et al., 2008; Petreca et al., 2020; Wilke-Schalhorst et al., 2019). Following these studies, we used a total of 14 variables describing victim selection characteristics. Specifically, these variables provide details on victim characteristics, lifestyle and routine activities: 1) Victim specifically targeted by the offender, 2) victim and offender were acquaintances (i.e., offender and victim knew each other but it does not consider familial relationship), 3) victim was a female, 4) victim was less than 16 years old; 5) victim consumed alcohol/drugs prior to crime, 6) victim was a loner (i.e., he/she avoids social contact with other people), 7) victim was a sex trade worker, 8) victim was frequently engaged in social activities, 9) victim was involved in domestic activities prior to crime (e.g., watching TV, etc.), 10) victim was sleeping, 11) victim was walking to or from somewhere at the time of offense (i.e., victim moved from one place to another independently of the travelled distance), 12) victim was jogging, 13) victim was drinking at a bar, 14) victim was visiting/in a date with the offender (i.e., included both situations where offenders and victims were strangers or acquaintances at the time of the crime).

*Sexual behavior.* Studies have suggested that criminal dismemberment could be motivated by the presence of paraphilias and sexual deviance (Dogan et al., 2010; Holmes, 2017; Petreca et al., 2020; Püschel & Koops, 1987; Ziemke, 1918). To test this assumption, we used variables describing sexual. A total of eight variables describe the sexual acts perpetrated by SHOs during the crime-commission: 1) vaginal penetration with a penis, 2) anal penetration with a penis, 3) masturbation of the offender, 4) fellatio, 5) fondling, 6) foreign object insertion (i.e., ante mortem), 7) postmortem sexual activities, 8) mutilation of genitals.

*Non-sexual behaviors.* Previous studies identified that criminal dismemberment could be associated with different types of non-sexual behaviors during the crime-commission

process (e.g., use of weapon) (e.g., Wilke-Schallhorst et al., 2019). We also decided to include other behaviors specifically associated with SH. A total of 10 variables was used to describe the non-sexual behavior of SHOs during the crime-commission process: 1) offender used a con as a strategy to approach the victim (e.g., befriended the victim, posed as an authority figure, offered assistance, etc.), 2) weapon intentionally used (i.e., weapon was used for the premeditated purpose of killing the victim. It was not used accidentally. This variable was based on elements from the police investigation and from interviews conducted with suspects), 3) weapon brought to the scene by the offender, 4) weapon removed from the scene by the offender, 5) method of killing: stabbed/cut, 6) method of killing: asphyxiation/strangulation, 7) use of restraints (i.e., to overcome victim's resistance), 8) items taken (i.e., offender took items from victim), 9) extreme acts committed on/with victim's body (i.e., carving on victim, evisceration, skinning victim, cannibalism, drinking of victim's blood), 10) evidence of overkill (i.e., inflicting more grievous bodily harm on the victim than is necessary to cause death).

*Body recovery and forensic awareness strategies.* Several studies suggested that SHOs could be forensically aware and could use criminal dismemberment as a strategy to try to avoid police detection (Beauregard & Martineau, 2014; Chai et al., 2020; Chopin et al., 2020; Dogan et al., 2010; Holmes, 2017; Petreca et al., 2020; Püschel & Koops, 1987; Ziemke, 1918). To test the association between criminal dismemberment and the offenders' ability to avoid police detection, we used a total of seven variables describing the postcrime phase. Specifically, these variables describe the body recovery characteristics and the forensic awareness strategies (FAS) used by SHOs: 1) body moved from the crime location, 2) body concealed, 3) body hidden or otherwise placed in order to prevent discovery, 3) body openly displayed to ensure discovery, 4) body found totally naked, 5) offender protected his identity (e.g., offender used a condom, offender wore gloves, etc.), 6) offender destroyed evidence

(e.g., offender set fire to scene, offender washed victim's body, offender cleared crime scene, offender planted evidence), 7) offender staged the crime scene.

*Crime-related locations.* Finally, studies mentioned the association between criminal dismemberment and certain crime locations (Konopka et al., 2007; Rajs et al., 1998; Wilke-Schalhorst et al., 2019). To test this relationship we used a set of 9 dichotomous variables to describe the crime-related locations: 1) contact scene: risk to be seen, 2) contact scene: residence (i.e., victim residence, offender residence, common area of a building), 3) contact scene: outdoor location, 4) offense scene: risk to be seen, 5) offense scene: residence, 6) offense scene: outdoor location, 7) body recovery scene: risk to be seen, 8) body recovery scene: residence, 9) body recovery scene: outdoor location.

### **Analytical Strategy**

To answer the research question, we proceeded in two steps. First, we examined at the bivariate level (i.e., chi-square) the differences between the two groups of crimes (i.e., those with dismemberment versus those without). Second, using only the significant variables ( $p \leq 0.05$ ) from the bivariate analyses, we computed a sequential binomial regression<sup>2</sup>. The objective of this multivariate analysis was to both identify the independent variables associated with criminal dismemberment at the multivariate level and determine the weight of each block of variables (i.e., victim selection, sexual behaviors, non-sexual behaviors, body recovery and FAS characteristics, and crime-related locations). Each block of variables was tested individually. Then, a nested binomial regression analysis was conducted using only the significant variables from all the previous models. This analysis represents the final and best model.

## **Results**

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<sup>2</sup> Multicollinearity was checked for the variables included in the multivariate analyses and no VIFs were above 2.47 and tolerance not below 0.42.

## **Bivariate Analysis**

Table 1 presents findings on the comparison between cases of SH where victims' bodies were dismembered and cases where it was not. Bivariate results suggest that in SH cases characterized by criminal dismemberment, there were fewer victims targeted by the offender ( $\chi^2 = 3.74, p = .050$ ) and fewer who were female ( $\chi^2 = 4.65, p = .031$ ). In SH cases with criminal dismemberment, a larger proportion of victims consumed alcohol/drugs ( $\chi^2 = 4.59, p = .032$ ) and were loners ( $\chi^2 = 10.61, p = .001$ ). Moreover, a larger proportion of victims were drinking at a bar ( $\chi^2 = 4.13, p = .040$ ) or visiting/on a date with the offender ( $\chi^2 = 4.94, p = .026$ ) prior to the crime.

SHOs involved in criminal dismemberment were more frequently the perpetrators of postmortem sexual activities ( $\chi^2 = 13.70, p = .000$ ) and mutilation of genitals ( $\chi^2 = 107.18, p = .000$ ). These SHOs more frequently used cutting and stabbing methods to kill their victims ( $\chi^2 = 7.43, p = .006$ ), and less frequently used strangulation and asphyxiation methods ( $\chi^2 = 7.60, p = .006$ ). The use of extreme acts on or with the victim's body ( $\chi^2 = 220.31, p = .000$ ) and intentional use of their weapon to kill the victim ( $\chi^2 = 23.41, p = .000$ ) were also more common among SHOs who used criminal dismemberment. Moreover, it was more common for this weapon to be intentionally brought to the crime scene by the offender ( $\chi^2 = 29.00, p = .000$ ). In cases with body dismemberment, the victims' bodies were more frequently found totally naked ( $\chi^2 = 12.03, p = .000$ ), with forensic evidence was destroyed ( $\chi^2 = 8.05, p = .005$ ) and the crime scene staged ( $\chi^2 = 9.58, p = .002$ ).

At the contact scene, SHOs who dismembered their victims less frequently selected a location where there was a risk to be seen by witnesses ( $\chi^2 = 5.19, p = .023$ ) or an outdoor location ( $\chi^2 = 12.27, p = .000$ ). This was also the case at the crime scene, as it was less common for these offenders to select a location where there was a risk to be seen ( $\chi^2 = 13.70, p = .000$ ) or use an outdoor location ( $\chi^2 = 6.71, p = .010$ ), and instead, more frequently chose

a residence ( $\chi^2 = 3.60, p = .05$ ). As to the body recovery location, SHOs who dismembered their victims less commonly selected a location with a risk to be seen ( $\chi^2 = 6.28, p = .012$ ), and instead, more frequently chose a residence ( $\chi^2 = 4.54, p = .033$ ).

### **Multivariate Analyses**

Table 2 presents findings of the binomial sequential regression. Model 1 includes only the variables related to the victim selection and presents a Nagelkerke  $R^2$  of 0.07. Findings show that victims specifically targeted (OR = 1/0.53,  $p = .036$ ) were 1.88 times less likely to have their bodies dismembered. Loner victims (OR = 2.91,  $p = .006$ ) and victims who were drinking at a bar (OR = 2.30,  $p = .032$ ) or visiting/on a date with the offender (OR = 2.78,  $p = .020$ ) prior to the crime were respectively, 2.91, 2.30 and 2.78 times more likely to have their bodies dismembered. Model 2 includes only the variables related to the sexual behaviors and presents a Nagelkerke  $R^2$  of 0.21. Findings indicate that SHOs who perpetrated postmortem sexual activities (OR = 2.56,  $p = .002$ ) and mutilation of victims' genitals (OR = 20.39,  $p = .000$ ) were respectively 2.56 and 20.39 times more likely to dismember bodies of their victims. Model 3 includes only the variables related to the non-sexual behaviors and presents a Nagelkerke  $R^2$  of 0.44. Findings show that SHOs who perpetrated extreme acts on/with bodies of their victims (OR = 28.37,  $p < .001$ ) and who intentionally used their weapon to kill their victims (OR = 4.78,  $p < .001$ ) were respectively 28.37 and 4.78 times more likely to dismember the body of their victims. Model 4 includes only the variables related to the body recovery characteristics and forensic awareness strategies used by SHO and presents a Nagelkerke  $R^2$  of 0.06. Findings indicate that crimes where the victims' bodies were found totally naked (OR = 1.96,  $p = .012$ ) and where SHOs staged the crime scene (OR = 2.60,  $p = .026$ ) were respectively 1.96 and 2.60 times more likely to be characterized by dismemberment. Model 5 includes only the variables related to the crime-related locations and presents a Nagelkerke  $R^2$  of 0.08. Findings show that SHOs who committed a crime at a

location with a risk to be seen (OR = 1/0.11,  $p = .007$ ) were 9.09 times less likely to dismember their victims' bodies. The best model includes only the significant variables of the five previous models and presents Nagelkerke  $R^2$  of 0.52. Results show that when victims were specifically targeted by the offenders, they were 2.27 times less likely to be dismembered, while when they were drinking at a bar (OR = 4.05,  $p = .002$ ) or visiting/on date with the offender (OR = 4.67,  $p = .007$ ) prior to crime, they were respectively 4.05 and 4.67 times more likely to be dismembered. Cases where SHOs performed postmortem sexual activities (OR = 1.78,  $p = .042$ ) and mutilation of genitals (OR = 3.29,  $p = .020$ ) were respectively 1.78 and 3.29 times more likely to be characterized by dismemberment. Cases where SHOs intentionally used their weapon to kill the victim (OR = 5.58,  $p < .001$ ) and where they performed extreme acts with/on victims' bodies (OR = 22.79,  $p < .001$ ) were respectively 5.58 and 22.79 times more likely to occur in cases where victims' bodies were dismembered. Finally, crimes committed at locations where SHOs risked being seen (OR = 1/0.24,  $p = .012$ ) were 4.16 times less likely to be characterized by criminal dismemberment.

### **Discussion**

This study aimed to investigate the specific crime scene behavior of criminal dismemberment in SH. Based on an important database of SH cases committed in Canada and France between 1948 and 2018 (i.e., SHIELD see Chopin & Beauregard, 2019), bivariate and multivariate analyses focusing on the crime-commission process were conducted to provide new insights on this crime scene behavior. Of the 662 cases investigated, we identified 77 cases where large body sections were entirely removed/detached from the body. As to the crime-commission process, we identified variables that, based on previous studies, could have an impact on criminal dismemberment: victim selection, sexual and non-sexual behaviors, body recovery information and FAS used by SHOs, as well as crime-related locations.

Findings showed that unusual sexual and non-sexual acts were strongly associated with criminal dismemberment.

### **Lust Murder vs Rational Act**

The objective of this study was to identify which crime-commission process characteristics were more likely to be associated with criminal dismemberment in SH. In order to explore this question, we conducted multivariate analyses to identify which type of behaviors are associated with criminal dismemberment. Our findings allow to determine that criminal dismemberment was more strongly associate with lust murder (i.e., sexual gratification in the act of killing) characteristics (Aggrawal, 2009, 2010; Holmes, 2017; Holmes & Holmes, 2002a; Holmes & Holmes, 2002b; Purcell & Arrigo, 2006) than with detection avoidance strategies used by SHOs (Beauregard & Martineau, 2014; Chai et al., 2020; Chopin et al., 2020).

At the bivariate level, findings showed that most of the variables related to lust murder (i.e., postmortem sexual activities, mutilation of genitals, extreme behaviors on victim's body) and detection avoidance (i.e., body found totally naked, removing / destroying forensic evidence, stage the crime scene) were associated with criminal dismemberment. Multivariate findings however provided deeper insights and allowed us to weigh the importance of each variable when combined together to explain criminal dismemberment. When analyzing Model 2 and Model 3, which included most of the variables related to lust murder characteristics (i.e., postmortem sexual activities, mutilation of genitals, extreme behaviors on victim's body), we observed that they both included the most important factors to explain criminal dismemberment. However, we also observed that in Model 4, including most of the factors related to detection avoidance strategies (i.e., body found totally naked, removing / destroying forensic evidence, stage the crime scene), the explanation of criminal dismemberment was limited. When these factors were combined together in the Best Model, we observed that only



the factors related to lust murder remained significant (i.e., postmortem sexual activities, mutilation of genitals, extreme behaviors on victim's body), suggesting that detection avoidance strategies were no longer important to explain criminal dismemberment when taking into account sexual motivation. This is congruent with previous studies showing that criminal dismemberment is associated with sexual deviance and paraphilia (Dogan et al., 2010; Holmes, 2017; Petreca et al., 2020; Püschel & Koops, 1987; Ziemke, 1918).

Our findings showed that criminal dismemberment occurring in SH was strongly associated with extreme behaviors committed on victims' bodies. The first behavior strongly associated with criminal dismemberment was the presence of postmortem sexual acts. As was observed in previous studies, this behavior was unusual, concerned only a few SH cases (Beauregard & Martineau, 2013; Chopin & Beauregard, 2019), and was mainly observed with specific victims (for instance the elderly victims, see Chopin & Beauregard, 2020b). In those conditions, it is particularly interesting to see this behavior overrepresented and strongly associated with criminal dismemberment. Postmortem sexual activities can be motivated by two aspects: The paraphilic behavior (i.e., necrophilia) or the offenders' sexual dysfunction. In some situations, SHOs obtained sexual gratification by having sexual intercourse with corpses and body parts (see Stein et al., 2010), while in other cases it is a way for SHOs with erectile dysfunctions and sexual inadequacy to obtain an unresisting and un-rejecting partner (Rosman & Resnick, 1989). The association between body dismemberment and postmortem sexual activities led us to favor the necrophilia hypothesis. We argue that SHOs performing postmortem sexual activities due to sexual dysfunction do not need to dismember their victim's body to achieve sexual gratification. They only look at a lifeless body to experiment different sexual behaviors despite their erectile difficulties (Chopin & Beauregard, 2020b). Necrophilia consists of obtaining sexual gratification with corpses or body parts (Aggrawal, 2009, 2010; Holmes, 2017). This definition allows us to better understand the association

between postmortem sexual activities and criminal dismemberment. In those cases, the body dismemberment is an essential condition to reach sexual gratification.

Furthermore, our findings showed that mutilation of genitals and the commission of extreme acts on/with victims' bodies (i.e., evisceration, cannibalism, skinning victims, drinking of victim's blood) were strongly associated with criminal dismemberment. These findings are congruent with previous studies which mentioned that criminal dismemberment is often associated with extreme forms of sexual mutilation as well as unusual behaviors such as cannibalism, dissection and the evisceration of victims' bodies (Aggrawal, 2010; Holmes, 2017; Holmes & Holmes, 2002a; Holmes & Holmes, 2002b). Aggrawal (2010) mentioned that homicidal necrophiles (also labeled necromutilosexuality) combine body dismemberment, acts of mutilation, and extreme behaviors. Two types of situations could be exposed here and depend on the presence or not of postmortem sexual activities. First, as suggested by the Aggrawal's (2010) classification, the necrophilic urge (i.e., an urge to kill because a dead body is required for necrophilic activities, Aggrawal, 2010, p. 73) led SHOs to not have any *ante-mortem* activities with victims. This would suggest that in cases where postmortem sexual activities were performed, mutilations (sexual and non-sexual) and extreme behaviors occurred once victims were dead. These behaviors could also be part of the sexual deviance and considered as ritualistic acts, as it is the case for criminal dismemberment. In cases with no postmortem sexual activity, acts of mutilation can occur both before and after the victim's death, as part of sexual sadism (see Aggrawal, 2010; Stefanska et al., 2017). Criminal dismemberment could be an outcome of extreme sadistic mutilations by opportunistic necrophile SHOs.

### **An Organized Crime-Commission Process**

Despite being characterized by a combination of irrational and unusual acts, the analysis of the crime-commission process suggested that SHOs involved in criminal

dismemberment made also decisions to successfully complete their crime according to their planned scenario or fantasies. This is congruent with previous studies which found that body dismemberment is more likely to occur in “organized” murderers (Beauregard & Martineau, 2017; Petreca et al., 2020; Saville & Ruddy, 2007). Lust and sadistic murderers have also been associated with organized crime scenes (see e.g., Douglas et al., 2006; Douglas et al., 1986; Ressler et al., 1988).

Our findings showed that SHOs involved in criminal dismemberment were not interested in targeting a specific victim but instead they were looking for situations where they could get easier access to vulnerable victims. This result is congruent with organized murderers’ modus operandi which are more likely to follow specific targeting practices. Victims of organized murderers are often targeted because they are at a location that increases their vulnerability (e.g., isolated location, drinking location, etc.) (Beauregard & Martineau, 2016; Reale et al., 2020). This predatory behavior, suggests that these offenders try to both minimize the risks and maximize the benefits of their crime as stated in the rational choice theory (Cornish & Clarke, 1986, 1987). The results of this study showed that SHOs who perpetrated criminal dismemberment were more likely to assault victims who were drinking at a bar. Bars are social environments presenting attractive characteristics for offenders who are looking to target vulnerable victims. First, they constitute places where individuals consume alcohol. Alcohol consumption is known to affect the human cognitive functioning (Peterson et al., 1990) by modifying the cost-benefit analysis of a situation and reducing the ability to oppose resistance (Assaad & Exum, 2002). Thus, individuals under the influence of alcohol consequently become suitable targets for SHOs who planned their crime. Second, bars are locations where social interactions and meetings are important. In such places, encounters with strangers are less likely to be perceived as suspicious. SHOs who target victims in bars can have access to a number of potential targets without arousing suspicion, by using a ruse as

an approach strategy. In these conditions, it is easier for an offender to convince a potential victim to follow him to a different location to pursue intimacy. Moreover, findings showed that a victim visiting or on a date with an offender was more likely to be victim of criminal dismemberment. In such a situation, the offender may set up a trap for his victim, allowing him to bring her directly to the crime location. This constitutes an effortless strategy for SHOs to avoid the risks associated with the victim transportation from the contact location to the crime location. This type of strategy was also observed in cases of sadistic SH involving child victims (Chopin & Beauregard, 2020a), where SHOs did not target a specific victim but a suitable situation to access unaccompanied children. We can argue that in SH characterized by this “premeditated opportunism” (Rossmo, 2000), SHOs were not interested in the physical characteristics of the victims and saw them as a vector to achieve their deviant sexual fantasies. In other words, they depersonalize their victims and consider them as an object for sexual pleasure. Despite the fact that findings of this study suggest that criminal dismemberment was more likely to occur in an organized and premeditated process, we cannot exclude that in some situations it may be perpetrated by opportunistic SHOs (Stefanska et al., 2015) who did not premeditate the SH.

Finally, our findings showed that SHOs involved in criminal dismemberment were more likely to select a crime location out of sight. This result is congruent with Beauregard and Martineau (2016) study which found that organized murderers were more likely to use less risky crime locations. Despite being interesting, this result is not surprising and confirms the idea that these offenders anticipated the commission of the crime. As mentioned by previous studies, dismemberment of the human body requires an organized process (Black et al., 2017; Petreca et al., 2020; Saville & Rutty, 2007). This act must be perpetrated under certain conditions and need time, material, physical strength, and discretion (Black et al., 2017; Saville & Rutty, 2007). We could assume that SHOs who planned to perform criminal

dismemberment chose a suitable location to successfully complete both the murder and the dismemberment. Previous studies showed that in most cases, both murder and body dismemberment occurred at the same location (Konopka et al., 2007).

### **Conclusions**

The current study aimed to investigate criminal dismemberment occurring in cases of SH. We compared the crime-commission process of 77 SH cases where criminal dismemberment was observed against 585 cases without dismemberment. The objective of this study was to determine whether SHOs perpetrating criminal dismemberment were motivated to avoid police detection or by deviant sexual fantasies. Our findings seem to suggest that criminal dismemberment occurred more often as part of a sexual deviance. Intention to kill the victim, necrophilia, mutilation of genitals, and commission of extreme acts committed on/with victims' bodies (i.e., evisceration, cannibalism, skinning victims, drinking of victim's blood) were strongly associated with criminal dismemberment behavior. Analysis of other elements of the crime-commission process show that these offenders are more likely to follow an organized modus operandi which is coherent with lust and sadistic murderers. Findings suggested that their modus operandi were characterized by premeditated opportunism in order to select vulnerable targets. We also found that criminal dismemberment required specific conditions in terms of crime locations so that SHOs perpetrated their acts when the risks to be interrupted were low.

This study presents several implications. First, our findings are the first to suggest that for SH specifically, criminal dismemberment should not be considered as a detection avoidance strategy. Further studies focusing on FAS used by SHO should not include this behavior in their analysis. The findings of this study suggested that SHO were able to try to avoid police detection but they do not use criminal dismemberment as an avoidance detection strategy. The risk of including criminal dismemberment with other avoidance strategies would

be to merge behaviors associated with totally different motivations. Second, our study would have implications for offender profiling. Findings of this research highlighted that criminal dismemberment in SH cases is associated with an organized modus operandi. Investigators should specifically target suspects with profiles associated with the organized murderer, such as individuals presenting a history of prior offenses, precipitating situational stresses (e.g., financial, employment, marital), and the collection of souvenirs or trophies associated with the crime (see Douglas et al., 2013).

Although this study presents several new insights, it is not without limitations. First, data used in this study are official data with inherent limitations in terms of validity and reliability (see e.g., Aebi, 2006; Chopin & Aebi, 2018, 2019). Despite most homicide cases reported to the police (see e.g., Aebi & Linde, 2012), we cannot exclude that some cases will never be identified or that missing person cases are in fact homicides that were misclassified. We also cannot exclude that in some cases, the sexual motivations were not identified by coroners and police investigators, especially when they had to analyze a dismembered body. Consequently, findings of this study concern only cases reported to the police and identified as sexual murders. Finally, we decided to analyze only solved cases in order to analyze more detailed information, but we cannot exclude that criminal dismemberment had an impact on the crime solving and that SHOs involved in unsolved cases present a different motivation. Nevertheless, previous research found that in SH cases, criminal behavior, failures in police investigations, and luck were more important than FAS to avoid police detection (Balemba et al., 2014; Beauregard & Martineau, 2014; James & Beauregard, 2018). Second, we tested an important number of independent variables ( $n = 48$ ), which can lead to type-1 error. Although using Bonferroni correction is one way to avoid this type of error, our study is exploratory in nature and is not meant to test specific hypotheses. Furthermore, we have conducted multivariate analyses following these multiple comparisons at the bivariate level, reducing the

impact of potential type-1 error. Third, we computed multivariate analyses on rare events. Methodological problems of rare events with logistic regression have been highlighted (see King & Zeng, 2001; Peduzzi et al., 1996) and can lead to several biases, as for example an over-representation of odds ratio. Therefore, multivariate findings must be interpreted with caution by focusing on trends instead of odds ratios. Finally, despite the fact that our findings show that criminal dismemberment is more likely to be offensive in SH, we cannot exclude that in some cases both offensive and defensive dismemberment or only defensive dismemberment was perpetrated by SHOs.

Future studies will be needed to replicate the current findings. This could be done using a similar methodology than the one used in our study, with data coming from other countries. Qualitative studies using interviews of offenders who have dismembered their victims would also be useful to better understand the motivations associated with this behavior. In addition, future studies should focus specifically on the developmental and psychosocial characteristics of SHOs who dismember their victims. Moreover, future studies should examine whether SHOs who dismember present similarities with life-course persistent or career criminals (see DeLisi, 2001; DeLisi & Beauregard, 2018; DeLisi & Piquero, 2011; DeLisi & Scherer, 2006). This would allow to test whether extreme forms of violence are associated with extreme types of offenders.

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## Tables

Table 1. Bivariate analysis (N=662)

	No body dismemberment n=585		Body dismemberment n=77		$\chi^2$
	n	%	n	%	
<b>Victim selection</b>					
Victim specifically targeted	193	32.99%	17	22.08%	3.74*
Victim and offender were acquaintances	250	42.73%	37	48.05%	0.78
Victim was a female	503	85.98%	59	76.62%	4.65*
Victim was aged less 16 yo	126	21.54%	10	12.99%	3.04
Victim consumed alcohol/drugs prior to crime	166	28.38%	31	40.26%	4.59*
Victim was a loner	33	5.64%	12	15.58%	10.61***
Victim was a trade sex worker	40	6.84%	6	7.79%	0.09
Victim was frequently engaged in social activities	149	25.47%	21	27.27%	0.12
Victim was involved in domestic activities prior to crime	137	23.42%	18	23.38%	0
Victim was sleeping	42	7.18%	6	7.79%	0.04
Victim was walking to or from somewhere at the time of offense	37	6.32%	6	7.79%	0.24
Victim was jogging	142	24.27%	19	24.68%	0.006
Victim was drinking in a bar	55	9.40%	13	16.88%	4.13*
Victim was visiting / in a date with the offender	26	4.44%	8	10.39%	4.94*
<b>Sexual behaviors</b>					
Vaginal penetration	309	52.82%	38	49.35%	0.33
Anal penetration	146	24.96%	13	16.88%	2.43
Masturbation	57	9.74%	4	5.19%	1.68
Fellatio	76	12.99%	15	19.48%	2.41
Fondling	118	20.17%	14	18.18%	0.17
Foreign object insertion (ante mortem)	72	12.31%	12	15.58%	0.66
Postmortem sexual activities	85	14.53%	24	31.17%	13.70***
Mutilation of genitals	15	2.56%	25	32.47%	107.18***
<b>Non-sexual behaviors</b>					
Con approach	333	56.92%	44	57.14%	0.00
Weapon intentionally used	325	55.56%	65	84.42%	23.41***
Weapon brought to the scene by the offender	189	32.31%	49	63.64%	29.00***
Weapon removed from the scene by the offender	188	32.14%	33	42.86%	3.51
Method of killing: Stabbing/Cutting	143	24.44%	30	38.96%	7.43**
Method of killing: Asphyxiation/Strangulation	264	45.13%	22	28.57%	7.60**
Use of restrains	114	19.49%	14	18.18%	0.74
Items taken	222	37.95%	31	40.26%	0.15
Extreme behaviors on victim's body	39	6.67%	51	66.23%	220.31***
Evidence of overkill	130	22.22%	15	19.48%	0.30
<b>Body recovery / Forensic awareness strategies</b>					
Body moved	165	28.21%	24	31.17%	0.29
Body concealed, hidden or otherwise placed in order to prevent discovery	164	28.03%	24	31.17%	0.33
Body openly displayed to ensure discovery	199	34.02%	19	24.68%	2.69
Body found totally naked	130	22.22%	21	27.27%	12.03***
Protection identity	63	10.77%	7	9.09%	0.20
Removing / destroying forensic evidence	186	31.79%	37	48.05%	8.05**
Stage Crime Scene	22	3.76%	10	12.99%	9.58**
<b>Contact, crime and body recovery location parameters</b>					
Contact scene: Risk to be seen	116	19.83%	7	9.09%	5.19*
Contact scene: Residential place	233	39.83%	28	36.36%	0.34
Contact scene: Outdoor place	180	30.77%	15	19.48%	4.17*
Offense scene: Risk to be seen	141	24.10%	5	6.49%	12.27***
Offense scene: Residential place	223	38.12%	38	49.35%	3.60*
Offense scene: Outdoor place	217	37.09%	17	22.08%	6.71**
Body recovery scene: Risk to be seen	124	21.20%	7	9.09%	6.28*
Body recovery scene: Residential place	187	31.97%	34	44.16%	4.54*
Body recovery scene: Outdoor place	246	42.05%	25	32.47%	2.58

Notes. \*p ≤ .05. \*\*p ≤ .01. \*\*\*p ≤ .001.

Table 2. Sequential binomial regression predicting victim's body dismemberment (N=662)

	Model 1			Model 2			Model 3			β
	β	S.E.	Exp(β)	β	S.E.	Exp(β)	β	S.E.	Exp(β)	
<b>Victim selection</b>										
Victim specifically targeted	-0.63	0.30	0.53*							
Victim was a female	-0.44	0.32	0.64							
Victim consumed alcohol/drugs prior to crime	-0.27	0.31	0.76							
Victim was a loner	1.07	0.39	2.91**							
Victim was drinking in a bar	0.83	0.39	2.30*							
Victim was visiting / in a date with someone	1.02	0.44	2.78*							
<b>Sexual behaviors</b>										
Postmortem sexual activities				0.94	0.30	2.56**				
Mutilation of genitals				3.02	0.42	20.39***				
<b>Non-sexual behaviors</b>										
Weapon intentionally used							1.56	0.43	4.77***	
Weapon brought to the scene by the offender							0.74	0.37	2.09†	
Weapon removed from the scene by the offender							-0.46	0.39	0.63	
Method of killing: Stabbing/Cutting							0.00	0.32	1.00	
Method of killing: Asphyxiation/Strangulation							-0.38	0.33	0.68	
Extreme acts committed on/with victim's body							3.35	0.33	28.37***	
<b>Body recovery / Forensic awareness strategies</b>										
Body found totally naked										0.67
Removing / destroying forensic evidence										0.43
Stage Crime Scene										0.96
<b>Contact, crime and body recovery location parameters</b>										
Contact scene: Risk to be seen										
Contact scene: Outdoor place										
Offense scene: Risk to be seen										
Offense scene: Residential place										
Offense scene: Outdoor place										
Body recovery scene: Risk to be seen										
Body recovery scene: Residential place										
<b>Constant</b>	-1.71	0.33	0.18***	-2.54	0.18	0.08***	-4.14	0.43	0.02***	-2.47
$\chi^2$	22.72***			74.59***			170.17***			19.09***
-log likelihood	453.28			401.41			305.83			456.91
Cox & Snell R2	0.03			0.11			0.23			0.03
Nagelkerke R2	0.07			0.21			0.44			0.06
Overall classification %	88.2			89.9			91.7			88.4

Notes. †p ≤ .1. \*p ≤ .05. \*\*p ≤ .01. \*\*\*p ≤ .001.