

Sexually Motivated Homicide: Descriptive Characteristics and Empirical Evidence

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The assessment of individuals charged with a sexual offence has evolved over many years and has become more specialized. The most comprehensive evaluation is available in specialized centres for assessing and treating sexual deviations. Sexually motivated homicide is an extremely rare event. Empirical studies have provided evidence-based characteristics of those who commit sexual homicide and the nature of sexual homicide offences, particularly in the last 10 years. This has assisted in defining whether a sexually motivated homicide has occurred. It can also be incorporated into sexual behaviour evaluations when factors associated with a sexually motivated homicide may be recognized before the person acts out violently. This paper reviews evidence-based research on sexual homicides and how this is used to classify whether a homicide is sexually motivated. Risk factors associated with sexually motivated homicides are reviewed.

Key words: *sexual homicide; sexually motivated homicide; sadistic sexually motivated homicide, sexual sadism*

The *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-5) saw a change from DSM-IV in differentiating paraphilic disorders from paraphilias (American Psychiatric Association, 1994, 2013). The paraphilic disorders listed in the diagnostic criteria were selected for two main reasons. They are typically compared to other paraphilic disorders, and they have the potential to cause harm to others and the possibility of association with criminal offences. Sexual sadism disorder involving pain and suffering is associated with sexually motivated homicide, although a considerable crossover between different paraphilic disorders occurs (Bradford et al., 1992). Sadistic sexual behaviour ranges from sexual activity between consenting partners to seriously violent criminal acts. At the high end of this spectrum is sexually motivated homicide. The victims of a sexually motivated homicide can be adults or, under rare circumstances, children (Hucker et al., 2021).

Prevalence

Sexually motivated homicides are among the most brutal criminal acts experienced by a community. Although they comprise only a small percentage of the overall homicides, they cause considerable distress in a community and receive a high media profile. In Canada, murder is a relatively rare event. In 2014 homicide accounted for about 0.2% of all deaths in Canada (Statistics Canada, 2017). The homicide rate remained stable in 2014 (1.45/per 100,000 of the population), meaning that 2013 and 2014 have been the lowest homicide rates since 1966 (Miladinovic, 2015). The homicide rate in Canada from 2016 until 2020 has varied from 1.71 per 100,000 of the population in 2016 to 1.96 per 100,000 in 2020 (Armstrong & Jaffray, 2021).

In most homicides, both parties are known to each other (83% of cases). This is further broken down into people killed by acquaintances (37%) and family members (34%) (Miladinovic, 2015). Stranger

victimization occurred in 21.1% of males and 11.3% of females (Armstrong & Jaffray, 2021).

Sexually motivated homicides remain rare (0.19 per 100,000 of the population) and are most commonly committed against strangers (Miladinovic, 2015). Out of the solved murders in Canada, between 3% (Indigenous female homicides) and 5% (non-Indigenous female homicides,) were committed by strangers (Miladinovic, 2015). Chan and Heide (2009) reported that in 2004, 1.1% of 14,121 U.S. murders were classified as sexual homicides. They also found that this rate was relatively stable, as the Federal Bureau of Investigation acknowledged in 2005. Based on a 30-year follow-up, Chan and colleagues (2010) reported that only 0.86% of all homicide cases in the United States had a sexual element. At the same time, Canada reported that 4% of the overall homicide rate between 1974 and 1986 had a sexual element to it (Chan et al., 2015).

In other countries, higher prevalence rates are reported. In 2003, there were about 200 people incarcerated for homicide with an apparent sexual motivation in the United Kingdom (Beech et al., 2005). A 10-year study by Francis and Soothill (2000) found that 3% of the 4,860 people convicted of murder in England were convicted of sexual murders. In summary, the prevalence of sexually motivated homicide varies in different countries but remains a rare event.

Studies of Sexually Motivated Homicide

Before 2008, there were few empirical studies of sexually motivated homicide, given that it is a rare event (Myers et al., 2017). Chan and Heide (2009) reviewed 32 studies from the mid-1980s to 2008. They found that only six studies had samples of more than 50 cases, and only one study had more than 100 cases. Since that time, however, studies involving larger data sets have been published, including international studies. According to Myers and colleagues (2017) studying United States data for 37 years (1976 to 2012) from the Federal Bureau of Investigation Supplementary Homicide Report, there was a total of 709,075 individuals arrested for homicide, with 0.84% of the crimes being categorized as sexual homicides.

Standard Definition of a Sexually Motivated Homicide

The difficulty in categorizing whether a homicide is sexually motivated may explain the difference between the statistics in Canada, the United Kingdom, Europe and the United States. There is

no clear standard definition of a sexually motivated homicide. Chan and Heide (2009) reviewed various definitions that have been used and noted that in some instances, sexual motivation may not be obvious. In its purest form, for a crime to be classified as a sexual homicide, there needs to be physical evidence of a sexual assault, sexual activity at the crime scene or an admission from the individual alleged to have committed the crime indicating a sexual motivation was present. Sexually motivated homicides in Canada require a sexual assault involving the genital areas to be present to be classified as a sexual homicide.

Chan and Heide (2009) reviewed the scientific literature on sexually motivated homicides between 1980 and 2008. They reported that the literature lacked standardization in the definition of sexually motivated homicide. They proposed a definition for a homicide to be ruled as sexual when one of the following criteria must be met:

- physical evidence of pre-mortem, peri-mortem or post-mortem sexual assault [oral, vaginal, or anal];
- physical evidence of substitute sexual activity, such as the exposure of the genitals or a sexual positioning of the body. This can include foreign object insertion into the genitalia or genital mutilation. This can also include evidence of sexual activity in the immediate vicinity of the body, such as evidence of masturbation inferring sexually deviant and sexually sadistic interest specifically;
- a legally admissible confession by the accused individual of a sexual motivation to the homicide; or
- an indication of a sexual motivation for the homicide is from other evidence, such as journal entries or computer documentation by the accused individual (Chan, 2017).

A Swedish study of all murders between 1990 and 2013 had a prevalence rate of 1.6% of sexually motivated homicides perpetrated by males on a female. Three factors differentiated sexually motivated murders in this study from other homicides: strangulation, the younger age of the victim, and the absence of eyewitnesses. The most obvious evidence of a sexually motivated homicide was crime scene evidence of sexual activity, such as semen, bondage, the victim being naked, sexual mutilation, positioning of the body, and foreign object insertion. A confession by the individual that the crime was sexually motivated is also clear evidence of a sexually motivated homicide (Meloy, 2000).

In the United Kingdom, there have been studies of people who have been incarcerated for sexually motivated homicides (Beech, Ward, & Fisher, 2006; Francis & Soothill, 2000). Francis and Soothill (2000) looked at 4,860 people who were convicted of homicide in England and Wales. They reported that 3% had committed a sexually motivated homicide. There had to be evidence of a sexual motivation for the crime as outlined above.

It became apparent that the study of sexual homicide from an empirical standpoint was complex because of a lack of a standardized definition.

Characteristics of Those Involved in Sexually Motivated Homicide

Chan (2017) looked at the characteristics of those who commit these homicides in a review of empirical evidence. Not surprisingly, most were males (about 95% of cases) and adults (88%) (Chan, 2017). They were most commonly between the ages of 25 and 34 years (Beauregard & Martineau, 2013).

Most victims were female. Depending on the study, up to 80% of the victims were aged 18 years or older. Sexual homicide against children is even rarer than sexual homicide against adults (Chan et al., 2015).

In the United States, most individuals who commit or are victims of sexual homicide were white, but Black people were overrepresented among sexual homicide perpetrators, compared to the general population (Chan et al., 2015). Furthermore, those of Caucasian ethnicity who commit sexual homicide were more likely to murder Caucasian individuals, whereas those of Black ethnicity offended intra-racially and inter-racially (Chan et al., 2010).

A previous criminal record is relatively common in those who committed sexual homicide. In a study in the United Kingdom, Greenall and Richardson (2015) found that 64% of British adult males who committed sexual homicide had a criminal record. Theft was the most common previous conviction.

Beauregard and Martineau (2013) completed a descriptive study of sexual homicide in Canada. This study covered 600 homicide and potential sexual homicide cases. The final sample consisted of 350 cases. The characteristics of the sample were similar to what had been documented previously. The average age of the people who committed sexual homicide was 28 years (SD 9.88). Most were white, but more than 25% were Indigenous people. They were noted to have a diverse criminal record, with an average of 1.7 convictions for

violent offences, 0.4 for sexual offences, and 7.3 for property offences. Most victims were female and white (62.8%), but 33.1% were Indigenous people. More than one-third of the victims had problematic drug use, and about one-quarter had problematic alcohol use.

In a Finnish study of sexual homicides, nearly 90% of the sample had a criminal record, with 56%, 25%, and 19% found to have at least one prior conviction for violent, sexual, and homicidal offences, respectively (Häkkinen-Nyholm et al., 2009). Only 18.9% of cases targeted a specific person to victimize, with most choosing the victims at random. The violence associated with sexual homicide varied considerably. In most cases individuals were beaten (47.1%) or strangled (41.7%). About 22% of those victimized were stabbed. A weapon was used in more than 60% of cases and was most commonly a knife. A heavy instrument was next, and a ligature was used in 20.3% of cases. In a small number of cases, more than one weapon was used, usually a knife and a ligature. Those who commit sexual homicide also used restraints (10.9%) or blindfolds (7.1%). In 43.1% of cases, there was evidence of overkill. A small number of sexual homicide perpetrators mutilated the genitalia (5.4%), bit the victim (7.4%) or dismembered the victim's body (6.3%). Evidence of post-mortem sexual activity was observed in 10.6% of cases (necrophilia). The types of sexual acts included vaginal intercourse as the highest percentage at 46.3%, followed by anal intercourse at 16.3%. Foreign object insertion occurred in 8% of cases.

Characteristics of Those Involved in Sadistic Sexually Motivated Homicide

The studies listed above did not differentiate between sexually motivated homicide and sadistic sexually motivated homicide. Sadistic sexually motivated homicide is committed by a small and unique group of perpetrators.

A comparative study by Gratzler and Bradford (1995) at the Royal Ottawa Hospital (ROH) found differences between those who committed sadistic and non-sadistic sexually motivated homicide. To be classified as a sadistic sexually motivated homicide, features of sexual sadism need to have been documented, such as sexual torture at the time of the murder. This study followed research by Dietz et al. (1990) from the National Centre for the Analysis of Violent Crime describing those who were sexually sadistic and the types of offences and crime scene characteristics in this type of homicide. Gratzler and Bradford (1995) found a history of parental infidelity

or divorce, childhood sexual abuse, vaginal penetration, and insertion of a foreign object were more common in non-sadistic sexually motivated homicides compared with those classified as sadistic. In both Dietz and colleagues (1990) and Gratzler and Bradford (1995), a significant history of childhood physical abuse, cross-dressing (transvestism), obscene telephone calls (telephone scatologia), indecent exposure (exhibitionism), voyeurism and careful planning of the offences were found in the sadistic sexually motivated homicide group (Gratzler & Bradford, 1995) but not in the other group. Those who committed sadistic sexual homicide from both studies were physically abused in childhood and were diagnosed with other paraphilic disorders, including transvestic fetishism, voyeuristic disorder, telephone scatologia, and exhibitionistic disorder. Cases from the NCVAC differed from the ROH by having military experience, being married at the time of the offence, having education beyond high school, establishing (or having established) a reputation as a solid citizen, involvement in an incestuous relationship with their child, involvement in excessive driving, and being police "buffs." All three groups (i.e., sadistic sexually motivated homicide group NCVAC; sadistic sexually motivated homicide group ROH; and non-sadistic sexually motivated homicide) had parental infidelity, were sexually abused in childhood, had a history of drug use other than alcohol, and had a history of suicide attempts (Gratzler & Bradford, 1995).

The offence characteristics associated with sadistic sexually motivated homicide were careful planning of the offence, a preselected location, an unemotional, detached affect during the attack, intentional torture (for example, physical beating); and sexual dysfunction during the offence. Also, anal rape, forced fellatio, and being bound, blindfolded, and gagged were characteristics of the sadistic homicide group. Humiliation and degradation related to the degree of sadism were characteristic. A higher frequency of anal rape and forced fellatio than vaginal rape was part of the degradation and humiliation. Other characteristics found in those who committed sadistic sexually motivated murder include impersonation of a police officer, partner assisting in the offence, the victim kept in captivity for 24 hours or more, sexual bondage, a variety of sexual acts, recording of the offence, concealing the corpse, and keeping trophies or personal items belonging to the victim (Gratzler & Bradford, 1995).

The physical torture included the painful insertion of foreign objects, whipping, biting, and painful bondage, burning, and twisting the breasts to

create pain. The cause of death, specifically ligature strangulation, was the chosen method of killing in sexually sadistic homicide. These features were not seen in non-sadistic sexually motivated homicide. The non-sadistic sexually motivated homicide presentation has more in common with the recent sexual homicide studies with a larger number of subjects. This makes sense given sadistic sexually motivated homicides are much less frequent than the broader category of sexually motivated homicides.

Biological and Other Factors Associated with Sexual Homicide

Although it is too comprehensive to review in this text, human sexual behaviour is an expression of a primary biological drive, the sexual drive, which has been extensively studied in basic science and clinical studies. Sexual behaviour is driven by genetic and neurohormonal factors from the conception of the fetus and fetal development throughout a person's life (Bancroft, 2002, 2005; Bradford, 2001, 2006). It can also be affected by the social and cultural aspects of society. Also, an empirical understanding of the natural history of paraphilic disorders is necessary (Bradford & Ahmed, 2014). The development of atypical sexual interests parallels the healthy development of sexual behaviour with the onset of fantasies at puberty, followed by the development of sexual urges, and then action governed by paraphilic interests (Bradford & Ahmed, 2014). In the case of individuals developing a paraphilic disorder, atypical sexual interest becomes a sexual preference that drives deviant sexual behaviour, which can lead to criminal sexual conduct (Janssen et al., 2009). The acting out of abnormal sexual behaviour usually starts in early adulthood, similar to what is seen with normal sexual functioning. Further, studies of the natural history of paraphilic behaviour show that in most cases of males with a diagnosis of a paraphilic disorder, multiple paraphilias are present (Bradford et al., 1992). As changes have occurred in society, particularly with the introduction of technology, changes to deviant sexual behaviour have resulted. For example, in more recent years, since the advent of the internet, we have seen a tremendous growth of individuals charged with the possession and distribution of child pornography. Before the internet, child pornography in print media was rare but was a risk factor for sexual offence recidivism (Kingston, Fedoroff et al., 2008).

A systematic review of childhood trauma, such as physical and sexual abuse, has been completed

(Dalsklev, 2021). The study found a positive association between childhood physical and sexual abuse predictive of sexual offence recidivism. Childhood trauma is common in offender populations, and the degree of physical and sexual abuse and associated trauma in completing the evaluation should be well documented. It needs to be considered a risk factor related to future recidivism, including sexual offence recidivism and violent recidivism (Dalsklev, 2021).

Testosterone is the principle androgen in developing and maintaining male sexual arousal and aggression. Also, it is crucial in maintaining sexual drive and sexual fantasies, including deviant sexual behaviour. A reduction in testosterone levels decreases the frequency of sexual fantasies, decreases urges to engage in sexual conduct, and decreases sexual behaviour, including normal and deviant sexual behaviour (Bancroft, 1995, 1998, 2002, 2005; Bradford, 1988, 2001).

Serotonin and dopamine neurotransmitters also affect sexual behaviour (Bradford, 2001). The relationship between neurotransmitters, sexual hormones, and sexual behaviour is complicated but is well-studied concerning the pharmacological treatment of paraphilic disorders (Bradford, 2001; Thibaut et al., 2010, 2020).

Studies of testosterone levels and sexual violence are equivocal. Still, more recently, the role of luteinizing hormone dysregulation is related to sexual abuse and sexual offence recidivism and may indicate pathological functioning of the hypothalamic-gonadal axis in paraphilic disorders (Kingston et al., 2012). Oxytocin has recently been implicated in behaviour related to empathy and sadistic behaviour (Luo et al., 2017).

Further research into the hypothalamic-pituitary axis and sex hormones, including releasing factors, is indicated. Research into the role of various neurotransmitters, particularly those that interact with releasing hormones and releasing factors, is another crucial line of research. This research may indicate abnormalities in the hypothalamic-pituitary-gonadal axis implicating genetic and possibly in-utero abnormalities contributing to serious sexual violence.

Increasingly, neuroimaging changes in the brain of sexually deviant males have been noted, both in sexual sadism and pedophilia that interact with releasing factors (Monhke et al., 2014). This area is progressing rapidly and is beyond the scope of this paper in terms of review. These new research findings are summarized in the Task Force Report of the World Federation of Societies of Biological Psychiatry (Thibaut et al., 2010, 2020).

Assessment of Sexual Homicide Perpetrators

The forensic psychiatric assessment of individuals charged with sexually motivated homicides occurs infrequently. It is usually in a specialized centre with experienced forensic psychiatrists and psychologists available to complete the evaluation. Forensic clinicians should have the training and a scientific understanding of human sexual behaviour.

The assessment of individuals charged with sexually motivated homicides is rare. Individuals charged with sexually motivated attempted homicide are more likely to have a complete forensic psychiatric evaluation. Here the approach is to consider the risk of future violence and the possibilities of treatment and rehabilitation. A comprehensive forensic psychiatric evaluation for deviant sexual behaviour involves the following:

- A sex hormone profile consists of total and free plasma testosterone measured at a specific time of the day, usually at 8 a.m. At the same time, luteinizing hormone, follicular stimulating hormone, estrogen, progesterone, and sex hormone-binding globulin are measured. This provides a review of any sex hormone abnormalities and a baseline if pharmacological treatment of the individual is planned later.
- A variety of sexual questionnaires are used, usually a self-report and an inventory of sexual behaviour related to that individual. Additional questionnaires involve measures of impulsivity, aggression, cognitive distortions related to child sexual abuse and the sexual abuse of adult females, substance use, and any other questionnaires that may be specifically relevant to that individual. Examples include screening for post-traumatic stress disorder if there is a history of trauma, autism spectrum disorder if there is a history of social difficulties, mood, and anxiety disorders, psychotic disorders, and other comorbidities, such as attention-deficit hyperactivity disorder.
- Measurements of sexual preference using sexual arousal or a penile tumescence technique are essential to diagnose pedophilia and establish evidence of sexual sadism and the risk for a sexually motivated homicide. In some centres, visual reaction time is used as an alternative (Krueger et al., 1998). Virtual reality has also been used in some settings to evaluate deviant sexual arousal.

This comprehensive approach would establish whether sexual sadism is present. Sexual sadism is an aggravating factor related to sexual offence recidivism (Kingston et al., 2010).

Criminal History and Crime Scene Evidence

This paper has already reviewed that establishing a sexual motivation is crucial to determining whether a homicide or attempted homicide was sexually motivated. The individual being assessed may characterize the crime as a sexually motivated homicide, supporting the classification. A previous history of sexual offences and a treatment history for paraphilic disorders also contribute to understanding whether a particular violent sexual incident was sexually motivated or not.

Characteristics of the previous behaviour documented in the criminal record may include reports of psychiatric treatment. Third-party information is critical to establish offender characteristics associated with sadistic sexually motivated homicide versus non-sadistic sexually motivated homicide (Dietz et al., 1990; Gratzner & Bradford, 1995).

In a study in Sweden, those convicted of serial homicides were more commonly diagnosed with personality disorders and autism spectrum disorders, compared with those convicted of a single homicide. Serial homicides more commonly involved female strangers, as well as careful planning, sexual motives and asphyxia as the most common cause of death (Sturup, 2018). Those convicted of serial homicide in the study had much in common with those convicted of sadistic sexual homicide in the previous studies.

A study done in the United Kingdom of male-on-female stranger sexual homicides reported that a weapon was used in 65% of cases, with the ligature (counted as a weapon) being the single most common type of instrument causing death (Greenall & Richardson, 2015). Further, multiple causes of death were recorded. Others received head injuries, and some were stabbed. Some had overt sexual acts with evidence of rape and sexual assault by penetration or other sexual acts. In an overt sexual group, there did not appear to be any evidence of sexual activity (Greenall & Richardson, 2015). Victims were disabled by gagging, blindfolding, and being tied up (Greenall & Richardson, 2015). Offenders hid their identity by disguise, gloves, masks, or false names. Wearing a condom was a precaution to avoid DNA crime scene evidence (Greenall & Richardson, 2015).

Sexually motivated burglary is associated with sexual homicides (Schlesinger & Revitch, 1999).

This phenomenon is not widely known and has been ignored by many forensic clinicians. Burglary is a prevalent offence but is not often subject to a forensic psychiatric evaluation. In this study, the authors found two types of sexually motivated burglaries. The first is a fetishism-motivated burglary, and the second is a voyeurism-motivated burglary. More than one-third of those who committed sexually motivated homicide in this study had engaged in a sexually motivated burglary.

Phallometric Assessment

The psychophysiological assessment of deviant sexual preference is based on sexual arousal being measured by techniques recording increased blood flow to the genitals in both males and females. Increased blood flow to the penis correlating with sexual arousal has been extensively studied for many years (Bancroft, 2005; Bancroft et al., 1966). Phallometric testing has become widely used in sexual behaviours clinics in North America for evaluating sexual offenders, including those convicted of sexual homicide. Although this technique is widely used, there is a lack of standardization of the technique (Howes, 1995) as well as the stimulus sets that are used to generate sexual arousal. The stimulus sets vary from slides, audiotapes, and videotapes (Abel et al., 1978, 1981; Freund, 1965). Some stimulus sets have been validated with sensitivity and specificity measures (Bradford et al., 1988; Freund & Blanchard, 1989; Mussack et al., 1987).

In an uncontrolled study of those who sexually offended against adult women ($n = 82$), against unrelated children ($n = 172$), and against their biological children or stepchildren ($n = 70$) Blanchard and colleagues (2001) found a sensitivity of 96% for those who offended against adult woman and 61% for those who offended against children.

With cross-validation of those convicted of sexually assaulting children and 100 healthy controls, the Ottawa Sexual Behaviours Clinic documented 78% sensitivity and 93% specificity (Bradford et al., 1988). In the phallometric laboratory, the ability to suppress sexual arousal was measured as part of the standardized testing using audiotape stimuli. The ability to suppress and its effects on the validity of penile plethysmography was examined in a large sample of men ($n = 1,136$) (Babchishin et al., 2017). The study showed that 83% of paraphilic sexual offenders did not successfully inhibit their sexual arousal. There were very few variables that were associated with the ability to suppress. Individuals who could suppress showed higher pedophile index

scores (higher deviant sexual arousal) also had a greater likelihood of sexual offence recidivism (Babchishin et al., 2017).

Deviant sexual preference predicts sexual offence recidivism (Hanson, 1997; Hanson & Thornton, 1999) and is one of the strongest predictors of sexual offence recidivism (Hanson & Bussiere, 1998). In various studies related to pedophilia and other paraphilic disorders, sexual preference is predictive of recidivism (Firestone et al., 1998; Firestone, Bradford, Greenberg, & Nunes, 2000; Firestone, Bradford, Greenberg, & Serran, 2000; Firestone, Bradford, McCoy, et al., 2000; Firestone et al., 2006; Greenberg et al., 2002; Kingston & Bradford 2013; Kingston et al., 2010; Kingston, Yates et al., 2008).

Those who commit sexual homicide have been evaluated using sexual arousal techniques (Firestone et al., 1998; Firestone, Bradford, Greenberg, & Nunes, 2000). Firestone (2000) found that penile plethysmography showed that people who molested children ($n = 216$) had higher arousal to pedophilic stimuli compared with a community sample of nonoffenders ($n = 47$). The results also showed that both homicidal and non-homicidal pedophiles had significantly higher pedophilic arousal than the community sample ($p < .05$) (Firestone, Bradford, Greenberg, & Nunes, 2000; Firestone, Bradford, Greenberg, & Serran, 2000).

Using the standardized sexual behaviours clinic database, Firestone and colleagues (1998) examined individuals who had committed homicidal sexual offences ($n = 48$) and compared them with a standardized sample of individuals who had committed incest offences. Incest offences were chosen as individuals within this group are mostly nonparaphilic on sexual arousal testing. In comparison, individuals in the homicidal sex offence group had a longer history of violence in their criminal records and nonviolent sexual offences than those in the incest group. On the PCL-R, they scored higher in the psychopathic direction, although they were not necessarily beyond the cut-off for psychopathy. They also showed higher pedophilic arousal and higher arousal to non-sexual violence.

The assault index measures arousal to non-sexual violence, for example, when a child is severely physically assaulted in an audiotape without sexual behaviour in the scenario. The index is calculated against the arousal to the lowest non-violent pedophilic stimulus or consenting sex with an adult female. This strongly supports the fact that homicidal sexual offenders respond to eroticized non-sexual violence. This indicates that sexual sadism was the difference between being homicidal

and non-homicidal (Firestone et al., 1998). This also supports sexual sadism as a risk factor for sexually motivated homicides.

In a follow-up study, Firestone, Bradford, Greenberg and Nunes (2000) looked at sexual arousal testing to see whether it could discriminate between homicidal and non-homicidal sexual offences involving children. Those in the homicidal group ($n = 27$) were compared with the non-homicidal group ($n = 189$) and normal controls ($n = 47$). Two phallometric indices were used, the pedophile index and the pedophile assault index. The pedophile index is calculated by the highest level of arousal to nonviolent pedophilic acts in an audiotape stimulus compared with consenting sex with an adult female. The pedophile assault index is the highest response to an audiotape depiction of non-sexual violence against a child compared with arousal to physically violent pedophilic acts. The homicidal sexual offence group had significantly higher scores on the pedophile index and pedophile assault index. The pedophile index differentiated the homicidal and non-homicidal groups from the controls. In contrast, the pedophile assault index differentiated the individuals who had engaged in homicidal versus non-homicidal sexual offences against a child (Firestone, Bradford, Greenberg, & Nunes, 2000). In most cases, the relative measure of a pedophile index or an aggressive index as an indication of the arousal to coercion and sexual sadism proved to be important factors associated with recidivism (Greenberg et al., 2002; Kingston & Bradford, 2013; Kingston et al., 2010; Kingston, Yates, et al., 2008).

In summary, deviant sexual arousal to non-sexual violence as an indicator of sexual sadism differentiates between those who commit homicidal and non-homicidal sexual offences against children. By extrapolation, it can be argued that sexual sadism is a contributing factor not only in sexual homicides against children but also in sexual homicides against adults. Deviant sexual arousal is important in assessing paraphilic disorders and can be used to measure treatment response. Studies have shown that patterns of sexual arousal can change (Babchishin et al., 2017; Fedoroff et al., 2015).

Questionnaires

The types of questionnaires used vary between different sexual behaviours laboratories. Some questionnaires measure cognitive distortions, amongst those who offend against adults and children. The assumption is that cognitive distortions are essential in identifying and maintaining deviant sexual

behaviour. It is generally accepted that altering cognitive distortions is an integral part of the psychological treatment of abnormal sexual behaviour.

An alcohol use disorder is associated with deviant sexual behaviour, particularly violent sexual behaviour, and is a risk factor for recidivism. Therefore, most laboratories use some measure of alcohol consumption to assess sexual offenders.

Some structured measure of sexual behaviour is also essential. The inventory of sexual behaviour should include the various types of paraphilic behaviour. It should consist of measures of the frequency of these behaviours, when they started, and measures of the level of intrusiveness. Several different inventory questionnaires are available (Bradford & Curry, 1984). Psychological measures of sexual fantasies, impulsivity and aggression should also be included in evaluating those charged with a criminal sexual offence. Sexual fantasies can be measured by qualitative and quantitative tools.

Hypersexuality is a factor in deviant sexual behaviour and should be measured. Two simple measures are the sexual activity score and the total sexual outlet, which is the number of orgasms in the previous seven days. It is also a significant risk factor for sexual offending and recidivism specifically. In a follow-up study of 586 adult male sexual offenders for about 20 years, results indicated that 12% of men met the clinical criteria for hypersexuality, and its presence was significantly associated with long-term sexual and violent recidivism (Kingston & Bradford, 2013).

In assessing any person charged with criminal sexual offending, the presence of sexual sadism is a crucial factor related to recidivism and risk. The relationship between sexual sadism in sexual offending and sexual violence and homicide is complicated (Fedoroff, 2008; Hucker et al., 2021). Sexual sadism needs to be evaluated explicitly in terms of the DSM-5 diagnostic criteria, the sexual history inventory used in the assessment, the history obtained from the individuals being assessed, and available collateral information.

Kingston and colleagues (2010) studied 586 males convicted of a sexual offence for up to 20 years post-release using official criminal records, DSM diagnosis, offence characteristics, phallometric assessment, and the Sex Offender Risk Appraisal Guide. Their study found that predictive validity for recidivism was related to the behavioural indicators of sexual sadism but not the formal psychiatric diagnosis. Phallometric assessment of sexual arousal to violence was significantly associated with violent (including sexual) recidivism.

The phallometric sexual arousal to violence added to the prediction of violent and sexual offence recidivism even after actuarially estimated risk to re-offend was considered in a multivariate analysis. Unfortunately, the diagnostic criteria for DSM diagnosis of sexual sadism were problematic at this stage, but this may have improved with DSM-5.

Conclusion

In summary, a detailed evaluation of sexual behaviours in people charged with criminal sexual conduct, including sexually motivated homicide, is well developed. This includes the detailed evaluation of the crime scene as well as the previous criminal history of individuals suspected of committing a sexually motivated homicide. For example, a previous conviction for a sexually motivated burglary would be an important contributing factor to establish a sexually motivated homicide. In specialized sexual behaviours clinics, a detailed evaluation including a sex hormone profile, a variety of questionnaires and penile plethysmography are also important in evaluating sexually motivated homicides. The specialized tests could also have value in examining the probability of recidivism. Careful diagnostic evaluation is required to detect the presence of sexual sadism.

Promising neurobiological research has been reported in recent years. Sexual sadism and its relationship to brain disorders are still under investigation despite promising developments (Thibaut, 2020). These studies, including neuroimaging, have shown an association between temporal lobe pathology and sexually sadistic behaviour. Advances in genetic and epigenetic studies related to deviant sexual behaviour may also contribute to the understanding of how sexual sadism disorder contributes to further empirical knowledge of sexually motivated homicides (F. Thibaut et al., 2010, 2020). Neurobiological studies, neuro-imaging studies and genetic research are likely to contribute to understanding sexual violence, including sexually motivated homicide and sadistic sexually motivated homicide in the future.

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