JOURNAL OF FORENSIC SCIENCES

*J Forensic Sci*, November 2011, Vol. 56, No. 6
doi: 10.1111/j.1556-4029.2011.01933.x
Available online at: onlinelibrary.wiley.com

**TECHNICAL NOTE**

**PSYCHIATRY & BEHAVIORAL SCIENCES**

*Judith Koch,[1] M.A.; Wolfgang Berner,[1] M.D.; Andreas Hill,[2] M.D.; and Peer Briken,[1] M.D.*

# Sociodemographic and Diagnostic Characteristics of Homicidal and Nonhomicidal Sexual Offenders*

**ABSTRACT:** The aims of this study were to compare the prevalence of psychiatric disorders and "psychopathy" in homicidal and nonhomicidal sexual offenders and to investigate the specificity of previous studies on psychiatric morbidity of a sample of sexual murderers. Information from court reports of 166 homicidal and 56 nonhomicidal sex offenders was evaluated using standardized instruments (SCID-II, PCL-R) and classification systems (DSM-IV). Sexual murderers were diagnosed more often with a personality disorder (80.1% vs. 50%; $p < 0.001$), especially schizoid personality disorder (16.3% vs. 5.4%; $p < 0.05$), as well as with sexual sadism (36.7% vs. 8.9%; $p < 0.001$) and sexual dysfunctions (21.7% vs. 7.1%; $p < 0.05$). Additionally, they had more often used alcohol during the offense (63.2% vs. 41%; $p < 0.05$). The results indicate that sexual murderers have more and a greater variety of psychiatric disorders when compared to nonhomicidal sex offenders.

**KEYWORDS:** forensic science, sexual murderers, personality disorders, paraphilias, sex offenders, psychopathy

There is high prevalence of psychiatric disorders in sexual offender populations (1–4), especially in forensic psychiatric settings. McElroy et al. (5) found the complete spectrum of Axis II disorders in a sample of 36 released sexual offenders. In 92% of offenders, cluster B personality disorders were found, and in 28%, a paranoid personality disorder. In terms of cluster B disorders, 72% of offenders were diagnosed with an antisocial personality disorder, 42% with a borderline disorder, and 17% with a narcissistic personality disorder. Thirty-six percent of sexual offenders had a cluster C personality disorder, particularly avoidant personality disorder (22%) and obsessive-compulsive personality disorder (25%). McElroy et al. (5) also examined paraphilias and found an overall prevalence of 58%, with pedophilia being the most common paraphilia (47%) and sexual sadism being the second most common (11%). Jackson and Richards (6) examined a group of 190 mentally ill sexual offenders and also diagnosed paraphilias in 98.4% of sexual offenders, with pedophilia (56.3%), sexual sadism (16.8%), exhibitionism (14.2%), and voyeurism (12.6%) being the most prevalent. In a sample of 70 sexual offenders, Berner et al. (7) found even higher rates of sexual sadism (40%).

Sexual offenders can be divided into two groups according to the age of their victims: those who victimize children and those who victimize adults. Child molesters and rapists seem to present different rates of psychiatric disorders (8,9): While child molesters present higher rates of dependent, avoidant, and schizotypal personality disorders, rapists are diagnosed more often with paranoid and narcissistic personality disorders and substance-abuse disorders.

Only a few studies examined psychiatric disorders in sexual homicide offenders (10–17). These revealed high rates of paraphilias, especially sexual sadism and antisocial, schizoid, and narcissistic personality disorders. Only a few of these studies included a control group. Grubin's study (16) was one of the first studies to compare sexual murderers with nonhomicidal sexual offenders. In a sample of 21 sexual murderers, which he compared to 121 rapists, he found significant differences in sociodemographic and psychological features: The sexual murderers had been more socially isolated during childhood and during their adult life, had fewer intimate relationships, were significantly older at the time of their index offense, were more likely "to keep their anger 'bottled up' before exploding" (16, p. 625), and were more likely to have been previously charged with rape.

Firestone et al. (13) emphasized diagnostic features in their comparison of 48 sexual murderers and 50 incest offenders in a forensic setting. They found no significant differences in age or IQ. The incest offenders were slightly more likely to have been physically abused in childhood. However, the sexual murderers were more likely to have been diagnosed with psychiatric disorders, especially any personality disorder (52.1% vs. 4%), antisocial personality disorder (35.4% vs. 0%), any paraphilia (79.2% vs. 24%), sexual sadism (75% vs. 2%), and atypical paraphilia (22.9% vs. 0%), as well as any substance abuse (39.6% vs. 6%), alcohol abuse (27.1% vs. 6%), and drug abuse (22.9% vs. 4%). The problem with this study is the heterogeneity of the two comparison groups. Incest offenders have different disorders than rapists (1) and sexual murderers. Langevin (11) chose a similar study design but with different control groups. He compared 33 sexual murderers with 80 sexually aggressive men, 23 (sexual) sadists, and 611 general sexual offenders. He found that sexual murderers were significantly younger at the time of their first offense and had a

[1]University Hospital Hamburg-Eppendorf, Institute for Sex Research and Forensic Psychiatry, Martinistraβe 52, 20246 Hamburg, Germany.
[2]Rothenbaumchaussee 7, 20148 Hamburg, Germany.

*This study was funded by the Institute for Sex Research and Forensic Psychiatry, Center for Psychosocial Medicine, University Medical Center Hamburg-Eppendorf.

Received 9 April 2010; and in revised form 17 Nov. 2010; accepted 20 Nov. 2010.



© 2011 American Academy of Forensic Sciences

more extensive history of animal cruelty, vandalism, and pyromaniac tendencies during childhood than the other three comparison groups. Regarding psychiatric disorders, the sexual murderers compared with the sexually aggressive men were diagnosed more frequently with sadomasochism (68% vs. 30%), voyeurism (42% vs. 34%), fetishism (18% vs. 5%), substance abuse (81% vs. 61%), psychosis (27% vs. 19%), and antisocial personality disorder (51% vs. 41%). Sexually aggressive men, however, were more likely to abuse alcohol.

Oliver et al. (17) also looked for demographic and psychological differences between 58 sexual murderers and 112 rapists. They discovered that sexual murderers were significantly younger at the time of their index offense, but not necessarily at the time of their first offense. The study found that both groups were equally likely to have been abused in childhood: 65% of the sexual murderers and 52% of the rapists had been sexually abused, and 68% of the sexual murderers and 82% of the rapists had been physically abused. Similar to Grubin (16), Oliver et al. (17) found that sexual murderers had been more socially isolated prior to their offense. No significant differences were found in most diagnostic features. However, in the "Antisocial Personality Questionnaire," the rapists scored higher on items such as paranoid suspicion and resentment and lower on self-esteem. Demonstrating that victims of sexual murderers tended to be older than those of rapists, Oliver et al. (17) concluded that "sexual murderers are rapists who ended up killing their victims, either through extreme anger, as a way of covering their tracks or because the victim was elderly" (p. 310).

Another important factor in the sexual offender group is "psychopathy" (4,18). "Psychopathy" is a disorder that develops in middle childhood, is characterized by an inability to adapt to social norms, and is regarded as a particular and severe form of antisocial personality disorder. The Psychopathy Checklist Revised (PCL-R, 19) can be separated into a two-factor structure: The first factor contains the psychopathic personality and is composed of characteristics such as "glibness/superficial charm," "grandiose sense of self-worth," "pathological lying," or "lack of remorse or guilt." The second factor describes social deviance and antisocial behavior and is composed of characteristics such as "parasitic lifestyle," "early behavioral problems," or "need for stimulation/proneness to boredom." "Psychopathy" is a risk factor for committing a sexual offense (18), especially rape. Rapists show higher scores in the PCL-R than child molesters. Offenders who victimize children as well as adults show the highest scores (20). In sexual murderers, the prevalence of "psychopathy" varies from 35% (21) to 91% (10). Comparing the PCL-R scores of sexual murderers and nonhomicidal sexual offenders, Firestone et al. (13) found that the sexual murderers had significantly higher total scores (26.6% vs. 18.7%) as well as higher factor 1 and 2 scores, although the difference in factor 2 was higher (factor 1: 12.6% vs. 9%; factor 2: 13.6% vs. 7.3%). In Langevin's study (11), sexual murderers showed significantly higher mean scores than sexual aggressive men (24.8% vs. 20.8%).

Although former studies compared sexual murderers with nonhomicidal sexual offenders, there is a lack of studies that include standardized instruments. In addition, these studies did not systematically consider the age of the victims.

The aims of this study are to compare homicidal and nonhomicidal sexual offenders regarding psychiatric disorders and "psychopathy" and to investigate the specificity of previous studies on psychiatric morbidity of a sample of sexual homicide perpetrators (22–30). We expected homicidal sexual offenders to have more numerous and severe disorders, especially antisocial personality disorders and sexual sadism, and to have a higher mean score in the PCL-R than nonhomicidal sex offenders.

## Method

### *Context and Sample*

Data were collected in an observational, nonrandomized study. The group of male nonhomicidal sexual offenders was selected from offenders who were evaluated in forensic psychiatric court reports between 2001 and 2007, using the standard documentary system, developed by the Institute of Sex Research and Forensic Psychiatry at the University Medical Center Hospital Hamburg-Eppendorf. Included were only men with written informed consent who never have committed a sexual homicide or any other kind of homicide, and who were assessed with the Structured Clinical Interview for DSM-IV for Axis II disorders (SCID-II) and the PCL-R, leaving a group of 56 men. This group was composed of 29 men who were charged with rape or sexual coercion of an adult victim, 20 child molesters, one exhibitionist, and six offenders who had victimized both children and adults. These men were compared with 166 male sexual murderers who had committed a sexual homicide between 1945 and 1991 and were investigated for court reports between 1960 and 2002. Hill et al. (22–30) adopted the definition of sexual homicide developed by Ressler et al. (31). These psychiatric court reports were retrospectively reevaluated in 2002–2003 using DSM-IV criteria (32) (for a detailed description of the methods, see 22–30). For the study of sexual murderers (22–30), an approval from an ethics committee was obtained.

The SCID-II (33) and Hare's PCL-R (34) were used to evaluate all homicidal and nonhomicidal sexual offenders. For each offender, all criteria for personality disorders according to the Structured Clinical Interview were rated. Through a thorough analysis of the extensive psychiatric court reports, all psychiatric Axis I disorders in both groups were diagnosed using current DSM-IV criteria. Aside from Axis I and Axis II disorders, details of the offense (offender's age at the index offense, victim's age, relationship between offender and victim, substance abuse at the time of the offense) and personal sexual and physical childhood history were assessed.

### *Data Analyses*

The group of 166 sexual murderers was compared with 56 nonhomicidal sexual offenders using logistic regression via odds ratio (OR). In some cases, the Fisher exact test was employed. For mean calculations, the *t*-test for independent samples was used. Results with a significance of $p < 0.1$ are described as a tendency, those with $p < 0.05$ as significant, and those with $p < 0.001$ as highly significant. SPSS 15.0 (SPSS Inc., Chicago, IL) was used for all analyses.

One problem in the comparison of the homicidal sexual offenders with a mixed sample of nonhomicidal sex offenders was the heterogeneity of the sample regarding victims' age. Because the group of nonhomicidal sexual offenders included a large number of child molesters, who, according to the literature, show different psychiatric morbidity than rapists (whether homicidal or not) (8,9), a multivariate regression was used to determine whether the results were merely a consequence of this group difference. For this purpose, homicidal sexual offenders with child victims were compared to nonhomicidal sexual offenders with child victims, as well as homicidal sexual offenders with adult victims were compared to nonhomicidal sexual offenders with adult victims. For the same purpose, the diagnosis of "pedophilia" was used as a category for the multivariate regression; however, these results are not reported here, because the same results were obtained as in the analysis regarding child or adult victims.

## Results

At the time of their index offense, nonhomicidal sexual offenders showed a mean age of 38.9 years (*SD* 10.5), and sexual murderers were significantly younger (32.8 years; *SD* 12.2). In both groups, most offenders were German (87.5% of the nonhomicidal group and 97.6% of the homicidal sex offenders). Nonhomicidal sexual offenders had a significantly higher education level than sexual murderers: 82.1% of the nonhomicidal sexual offenders had finished school compared with only 62% of the sexual murderers. At the time of incarceration, 37.5% of nonhomicidal sexual offenders and 28.9% of homicidal sexual offenders were unemployed.

Additionally, the sexual murderers were significantly more likely to have been physically and sexually abused as a child (Table 1).

### *Victims*

The victims of sexual murderers tended to be significantly older than those of the nonhomicidal sex offenders. Most of the victims were acquaintances or strangers; only 25% of the nonhomicidal sexual offenders and 4.8% of the sexual murderers victimized relatives.

### *Substance Use*

Homicidal sexual offenders were significantly more likely to have consumed alcohol at the time of their offense (63.2% vs. 41%). While the diagnosis of alcohol abuse was more prevalent in sexual murderers, nonhomicidal sexual offenders were more likely to have abused illegal drugs (Table 2).

### *Paraphilias, Sexual Dysfunctions, Axis II Disorders, and "Psychopathy"*

The sexual murderers presented significantly more paraphilias, especially sexual sadism and fetishism. Pedophilia was diagnosed more often in nonhomicidal sexual offenders. In addition, sexual murderers suffered more frequently from sexual dysfunctions, particularly erectile dysfunction. They were also more likely to be diagnosed with an Axis II disorder (personality disorders in general, schizoid personality disorder, any cluster C personality disorder, and avoidant personality disorder) than nonhomicidal sexual offenders (Table 3). Schizoid personality disorder occurred more than three times as often in homicidal than in nonhomicidal sexual offenders. No significant difference was found in any cluster B personality disorders, such as antisocial personality disorder.

TABLE 1—*Experiences of victimization in sexual murderers and nonhomicidal sex offenders.*

| | Sexual Murderers $n$ = 166 | | Nonhomicidal Sexual Offenders $n$ = 56 | | | | |
|---|---|---|---|---|---|---|---|
| | $n$ | % | $n$ | % | OR | 95% CI | $p$ |
| Sexually abused | 7 | 4.2 | 5 | 9.3 | 0.75 | 0.21–2.65 | 0.65 |
| Physically abused | 89 | 53.6 | 23 | 42.6 | 2.07 | 1.04–4.15 | 0.038 |
| Sexually and Physically abused | 29 | 17.5 | 4 | 7.4 | 3.89 | 1.21–12.49 | 0.022 |

Pairwise comparison with victimization. OR < 1, odds of homicidal sex offenders being victimized in relation to no victimization are lower than those of nonhomicidal sex offenders; OR > 1, odds of homicidal sex offenders being victimized are greater than those of nonhomicidal sex offenders.

TABLE 2—*Offense characteristics in sexual murderers and nonhomicidal sex offenders.*

| | Sexual Murderers $n$ = 166 | | Nonhomicidal Sexual Offenders $n$ = 56 | | | | |
|---|---|---|---|---|---|---|---|
| | $n$ | % | $n$ | % | OR | 95% CI | $p$ |
| Offense | | | | | | | |
| Mean age at offense* | 32.8 (*SD* 12.2) | | 38.9 (*SD* 10.5) | | – | – | < 0.001 |
| Single offense | 130 | 78.3 | 26 | 47.3 | 4.03 | 2.11–7.68 | < 0.001 |
| Multiple offense | 36 | 21.7 | 29 | 52.2 | | | |
| Alcohol use at offense | 103 | 63.2 | 16 | 41 | 2.47 | 1.21–5.03 | 0.013 |
| Substance use at offence | 13 | 7.9 | 8 | 16.3 | 0.44 | 0.17–1.13 | 0.087 |
| Victim | | | | | | | |
| Adult | 130 | 78.3 | 30 | 58.8 | 2.52 | 1.29–4.93 | 0.007 |
| Child | 36 | 21.7 | 21 | 41.2 | | | |
| Stranger† | 69 | 41.6 | 22 | 39.3 | 5.49 | 2.03–14.8 | 0.001 |
| Acquaintance‡ | 89 | 53.6 | 20 | 35.7 | 7.78 | 2.88–21.06 | < 0.001 |
| Relative | 8 | 4.8 | 14 | 25 | – | | < 0.001 |
| Substance abuse | | | | | | | |
| Alcohol Abuse/dependence | 78 | 47 | 20 | 35.7 | 1.59 | 0.85–2.98 | 0.143 |
| Substance Abuse/dependence | 17 | 10.2 | 12 | 21.4 | 0.751 | 0.33–1.72 | 0.496 |

*$t$-Test for independent samples.

†Pairwise comparison with victim. OR < 1, odds of homicidal sex offenders having victimized strangers in relation to relatives are lower than those of nonhomicidal sex offenders; OR > 1, odds of homicidal sex offenders having victimized strangers are greater than those of nonhomicidal sex offenders.

‡OR < 1, odds of homicidal sex offenders having victimized acquaintances are lower than those of nonhomicidal sex offenders; OR > 1, odds of homicidal sex offenders having victimized acquaintances are greater than those of nonhomicidal sex offenders.

TABLE 3—*Psychiatric disorders in sexual murderers and nonhomicidal sex offenders.*

| | Sexual Murderers in % *n* = 166 | | Nonhomicidal Sexual Offenders in % *n* = 56 | | | | |
|---|---|---|---|---|---|---|---|
| Psychiatric disorder | *n* | % | *n* | % | OR | 95% CI | *p* |
| Number of disorders mean* | 4.95 | | 2.09 | | – | – | < 0.001 |
| Psychosis | 5 | 3 | 5 | 8.9 | 0.32 | 0.09–1.14 | 0.078 |
| Mood disorder | 16 | 9.6 | 2 | 3.6 | 2.8 | 0.64–12.9 | 0.168 |
| Anxiety/obsessive disorder | 8 | 4.8 | 2 | 3.6 | 1.3 | 0.28–6.64 | 0.689 |
| Somatoform disorders | 14 | 8.4 | 1 | 1.8 | 5.06 | 0.65–39.4 | 0.121 |
| Impulsive disorder | 3 | 1.8 | 1 | 1.8 | 1.01 | 0.13–9.93 | 0.992 |
| Mental retardation | 4 | 2.4 | 5 | 8.9 | 0.25 | 0.06–0.97 | 0.046 |
| Any Paraphilia | 86 | 51.8 | 18 | 32.1 | 2.23 | 1.12–4.23 | 0.12 |
| Pedophilia | 21 | 12.7 | 14 | 25 | 4.34 | 0.20–0.93 | 0.031 |
| Fetishism* | 5 | 3 | 0 | 0 | – | – | 0.334 |
| Exhibitionism | 6 | 3.6 | 2 | 3.6 | 1.01 | 0.19–5.12 | 0.988 |
| Transvestitism† | 10 | 6 | 0 | 0 | – | – | 0.069 |
| Voyeurism | 10 | 6 | 1 | 1.8 | 3.5 | 0.44–28.13 | 0.235 |
| Sexual sadism | 105 | 36.7 | 5 | 8.9 | 17.8 | 6.75–47.17 | < 0.001 |
| Number of paraphilias Mean* | 0.81 | | 0.34 | | 2.2 | −0.74 to −0.21 | 0.001 |
| Any sexual dysfunction | 36 | 21.7 | 4 | 7.1 | 3.6 | 1.22–10.62 | 0.020 |
| Erectile dysfunction | 23 | 13.9 | 3 | 5.4 | 2.8 | 0.82–9.85 | 0.10 |
| Ejaculatio praecox | 7 | 4.2 | 2 | 3.6 | 1.18 | 0.24–5.89 | 0.832 |
| Any personality disorder | 133 | 80.1 | 28 | 50 | 4.03 | 2.11–7.7 | < 0.001 |
| Cluster A | 32 | 19.3 | 6 | 10.4 | 1.9 | 0.78–5.04 | 0.147 |
| Schizoid | 27 | 16.3 | 3 | 5.4 | 3.34 | 0.99–11.19 | 0.05 |
| Schizotypal† | | 1.8 | 0 | 0 | – | – | 0.57 |
| Paranoid | 5 | 3 | 3 | 5.4 | 0.549 | 0.13–2.37 | 0.422 |
| Cluster B | 70 | 42.2 | 17 | 30.4 | 1.67 | 0.87–3.19 | 0.119 |
| Antisocial | 45 | 27.1 | 15 | 26.8 | 1.02 | 0.51–2.01 | 0.962 |
| Narcissistic† | 16 | 9.6 | 0 | 0 | – | – | 0.014 |
| Borderline | 31 | 18.7 | 10 | 17.9 | 1.05 | 0.48–2.32 | 0.892 |
| Histrionic | 0 | 0 | 0 | 0 | – | – | – |
| Cluster C | 29 | 17.5 | 3 | 5.4 | 3.74 | 1.09–17.79 | 0.036 |
| Avoidant | 21 | 12.7 | 2 | 3.6 | 3.9 | 0.89–17.24 | 0.072 |
| Dependent† | 6 | 3.6 | 0 | 0 | – | – | 0.341 |
| Obsessive-compulsive | 2 | 1.2 | 1 | 1.8 | 0.671 | 0.06–7.54 | 0.764 |

**t*-Test for independent samples.
†Fisher's exact test.

Although Hare's PCL-R (19) revealed a significant difference of the mean total scores between the two groups (Table 4), no difference was found in the actual diagnosis of "psychopathy": Exactly, 18% in both groups were "psychopaths" according to the European cutoff score of 25 points (35).

### *Multivariate Analysis*

The multivariate analysis regarding the use of alcohol during the index offense revealed that alcohol use only occurred more often in sexual murderers with adult victims. Consumption of alcohol is three times as likely to be present in cases of sexual murder as in nonhomicidal sexual offense cases (OR = 3.2; $p = 0.018$). Alcohol use does not appear to present a significant difference in terms of homicidal and nonhomicidal sex offenders with child victims.

TABLE 4—"*Psychopathy" (PCL-R) in sexual murderers and nonhomicidal sex offenders.*

| | Sexual Murderers *n* = 166 | | Nonhomicidal Sexual Offenders *n* = 56 | | |
|---|---|---|---|---|---|
| | Mean | SD | Mean | SD | *p* |
| Factor 1 | 6.3 | 3.5 | 6 | 3.6 | 0.62 |
| Factor 2 | 7.9 | 4.6 | 6.3 | 4.8 | 0.04 |
| Total score | 16.5 | 8.3 | 14.2 | 8.3 | 0.08 |

*t*-Test for independent samples.

We found that psychiatric disorders, specifically personality disorders, are twice as common in sexual murderers with adult victims as in those with child victims ($p = 0.053$). No significant difference occurred in the multivariate analysis of cluster C and schizoid personality disorders: Both disorders appear to occur independently of the victim's age but are much more common in sexual murderers. When correlating paraphilias in both groups with the age of the victim, we found that sexual murderers with adult victims were diagnosed more than seven times as often with a paraphilia than those who victimized a child. This gap is likely due to the substantial differences between the two groups regarding the diagnosis of sexual sadism.

According to the multivariate analyses—similar to the results of the univariate analyses—it became clear that independent of the victims' age, sexual sadism is significantly more likely to be present in sexual murderers than in nonhomicidal sex offenders.

We found no significant differences in the multivariate analysis regarding pedophilia. This means that pedophilia was diagnosed more frequently in nonhomicidal sex offenders, unrelated to the higher number of child victims in this group.

When including sexual dysfunctions in the multivariate analyses, this diagnosis only occurred significantly more often in sexual murderers with adult victims (OR = 4.75; $p = 0.04$), similar to alcohol

use. In the group that targeted child victims, there was no significant difference in the diagnosis of sexual dysfunctions between homicidal and nonhomicidal offenders.

The results indicate that sexual murderers are usually more severely disturbed than nonhomicidal sex offenders. Sexual murderers were more than twice as likely to be diagnosed with Axis II disorders and presented a greater variety of personality disorders than nonhomicidal sex offenders. In cluster A personality disorders, there was a statistical difference only in terms of schizoid personality disorder. The schizoid offender is very hesitant to socialize with other individuals and tends to be distanced in human relations because he may have a reduced or disturbed wish for intimacy. Therefore, he is often socially isolated. He typically has only a limited variety of emotions and lacks empathy, which, in these special forensic circumstances, may increase the risk to commit a homicide without experiencing feelings of guilt.

Only the narcissistic personality disorder showed a statistical significance within the category of cluster B personality disorders. The most common personality disorder in both groups is antisocial personality disorder. Because antisocial personality disorder is characterized by a lack of empathy and guilt and a low level of frustration and aggression, this finding is not surprising. The antisocial offender cannot or does not want to take interest in the feelings of a potential sexual partner, is frustrated easily, becomes aggressive, and rapes (and sometimes kills) his victim without feeling guilty or fearing the consequences of his actions. However, contrary to Langevin's (11) findings, the two groups in our study did not differ significantly. Sexual murderers cannot be characterized in terms of antisocial personality traits alone.

The differences found in cluster C personality disorders were more prominent. Being diagnosed with a cluster C personality disorder may have led a sexual offender to experience an anger outburst resulting in murdering his victim. Because men with cluster C personality disorder are afraid of being disliked and rejected, they may distance themselves from other people. This feeling of rejection may cause them to "crack" and to compensate for their sense of self-disgust by overpowering and dominating their victim by means of a sexual offense. Previous insults may come to the surface, and the offender kills his victim either as a result of his anger outburst, or out of shock, or as a result of fear of being caught.

The paraphilia with the most striking difference between both groups was sexual sadism. In this study, sexual sadism occurs 17 times as often in sexual murderers than in nonhomicidal sex offenders. Offenders presenting characteristics of sexual sadism are sexually stimulated by physical or psychological pain or by seeing another person suffer. Krafft-Ebing (36) defined the sexual sadists' motivation as the will to feel power and superiority. Causing pain and causing other people to suffer is his way of experiencing and demonstrating his superiority. Many sexually sadistic offenders like to prolong the torturing of their victims because this leads to a more intense stimulation (37). The murder, though not necessarily intentional, could be interpreted as an unexpected result of that intense stimulation. The sadistic offender, however, could also have planned the murder in advance and spent an extended amount of time fantasizing about the murder act. In this case, the offense may be a realization of a rehearsed detailed stimulation fantasy.

Pedophilia was diagnosed more often in nonhomicidal sexual offenders. This could indicate that homicidal sexual offenders do not necessarily approach child victims only in search for sex but may be more often for the satisfaction of sexually sadistic needs. This finding is supported by Firestone et al. (38) who found that homicidal and nonhomicidal sexual offenders were both stimulated by sexual representations of children, but while the nonhomicidal sex offenders were stimulated equally by all prepuberal stimuli, the sexual murderers were mostly stimulated by representations of children being physically and sadistically abused, which could correspond with our findings regarding sexual sadism.

Regarding "psychopathy," surprisingly, homicidal and nonhomicidal sex offenders only differed significantly in factor 2, which corresponds to social deviance and antisocial behavior in "psychopathy." This could be due to the fact that sexual murderers were significantly younger at the time of their index offense and perhaps started their criminal career earlier than nonhomicidal sex offenders. As a result, sexual murderers might have scored higher on items such as "early behavioral problems," "juvenile delinquency," or "revocation of conditional release" than the nonhomicidal sex offenders. Contrary to findings of previous studies, in the comparison of the PCL-R total score, only a tendency was found. Although the sexual murderers had slightly higher scores, the difference did not reach statistical significance. In both groups, we found the same number of "psychopaths."

Another finding of our study was that alcohol use at the time of the offense occurred more frequently in homicidal sexual offenders. Because alcohol may increase aggression and sexual arousal but decreases (or disrupts) inhibition (39), the use of alcohol may contribute to the victim being murdered, albeit unintentionally. Although alcohol initially increases sexual arousal, the offender may eventually not be able to get or maintain an erection. Combined with the fact that significantly more sexual murderers suffer from erectile dysfunction, the sexual murder sometimes could be a result of the offender's frustration over his inability to get an erection. The offender's frustration may lead to aggression and a desire to punish the victim for his own humiliation by killing it. Sexual dysfunction, however, could also be a result of the lack of stimulation for a paraphilic offender. An offender with a specific paraphilia, for instance, sexual sadism, pedophilia, or a certain fetish, may have acted on an impulse to offend sexually but chose a victim or situation not suited to his specific sexual needs. This lack of paraphilia-related stimulation (in the case of a pedophilic offender, a prepubertal stimulus) might have led to an inability to develop or maintain an erection.

Apart from diagnostic differences, we found that sexual murderers were more likely to have been physically abused as children. In some cases, committing a sexual offense may correlate with personal experiences of child abuse (40). This may be the case for sexual murders as well; their personal experiences with physical abuse may be one of the reasons they develop sexually sadistic tendencies (25). The reversal of the feelings of helplessness and inferiority into feelings of power and superiority may be one source of motivation for the sexual murder.

Our results support findings in an early conceptual paper by Brittain (41). In his descriptions of "The sadistic murderers," he discusses a type of sexual murderer who is introspective and withdrawn, who has no close friends, and who lacks attachment and empathy. He may be schizoid or avoidant, in which case he often becomes embarrassed and afraid of rejection. In these cases, the offense may be well planned, most likely at a time when he is experiencing a loss of self-esteem. According to our findings, we would suggest a second cause of a lethal ending to sexual aggressions. Perhaps a sexual dysfunction caused the offender to suddenly feel ashamed and kill his victim as an act of revenge for his personal frustration. Sexual dysfunctions can have different causes. For instance, long-term alcohol abuse can lead to sexual dysfunctions. This scenario would correspond to a more situational cluster of offense motivations. In this group, sadistic and schizoid

characteristics may be less important, but alcohol abuse and antisocial personality disorder may play a stronger role.

The limitations of this study are the different surveying methods used between the two comparison groups and the different group sizes. Data about the nonhomicidal sex offenders were assessed by the standard documentary system developed by the Institute for Sex Research and Forensic Psychiatry. Data about the sexual murderers were assessed using the original court reports and reevaluating these information. Also, the compatibility of the two groups could be improved by selecting court reports from the same time period. The court reports of the sexual murderers were from the period 1960–2002, whereas only court reports from the period 2001–2007 of the nonhomicidal sex offenders were assessed. However, data of sexual murderers were reevaluated using the items of the standard documentary system and using diagnostic criteria of the DSM-IV (31) and the same standardized instruments (SCID-II and PCL-R). In spite of these limitations, the authors are confident that the study on hand is valuable to the scientific community as there only three studies the authors know about that have a similar control group design.

*Acknowledgments*

We thank Eik Vettorazzi and Dietrich Klusman, Ph.D., for the statistic support, as well as Dr. Mark Schroeder and Joel S. Iffland for data collection. Furthermore, we thank the Deutsche Forschungsgemeinschaft for the financial support of the study of sexual murderers and the cooperating institutes.

## References

1. Marshall WL. Diagnostic issues, multiple paraphilias, and comorbid disorders in sexual offenders: their incident and treatment. Aggress Behav 2007;12(1):16–35.
2. Dunsieth NW Jr, Nelson EB, Brusman-Lovins LA, Holcomb JL, Beckman D, Welge JA, et al. Psychiatric and legal features of 113 men convicted of sexual offences. J Clin Psychiatry 2004;65(3):293–300.
3. Fazel S, Sjöstedt G, Långström N, Grann M. Severe mental illness and risk of sexual offending in men: a case-control study based on Swedish national registers. Evid Based Ment Health 2007;10(4):126.
4. Myers WC. Juvenile sexual homicide. London, UK: Academic Press, 2002.
5. McElroy S, Soutullo CA, Taylor P, Nelson EB, Beckman DA, Brusman LA, et al. Psychiatric features of 36 men convicted of sexual offences. J Clin Psychiatry 1999(6);60:414–20.
6. Jackson RL, Richards HJ. Diagnostic and risk profiles among civilly committed sex offenders in Washington State. Int J Offender Ther Comp Criminol 2007;51(3):313–23.
7. Berner W, Berger P, Hill A. Sexual sadism. Int J Offender Ther Comp Criminol 2003;47(4):383–95.
8. Ahmmeyer S, Kleinsasser D, Stoner J, Retzlaff P. Psychopathology of incarcerated sex offenders. J Personal Disord 2003;17(4):306–18.
9. Chantry K, Craig RJ. Psychological screening of sexually violent offenders with the MCMI. J Clin Psychol 1994;50(3):430–5.
10. Stone MH. Serial sexual homicide: biological, psychological and sociological aspects. J Personal Disord 2001;15(1):1–18.
11. Langevin R. A study of the psychosexual characteristics of sex killers: can we identify them before it is too late? Int J Offender Ther Comp Criminol 2003;47(4):366–82.
12. Firestone P, Bradford JM, Greenberg DM, Larose MR, Curry S. Homicidal and nonhomicidal child molesters: psychological, phallometric and criminal features. Sex Abuse 1998;10(4):305–23.
13. Firestone P, Bradford JM, Greenberg DM, Larose MR, Curry S. Homicidal sex offenders: psychological, phallometric and diagnostic features. J Am Acad Psychiatry Law 1998;26(4):537–52.
14. Stein ML, Schlesinger LB, Pinizzotto AJ. Necrophilia and sexual homicide. J Forensic Sci 2010;55(2):443–6.
15. Carabellese F, Vinci F, Catanesi R. Compatibility between mental disorder and mental capacity: analysis of a particular case of group sexual homicide. J Forensic Sci 2008;53(6):1450–4.
16. Grubin D. Sexual murder. Br J Psychiatry 1994;165(5):624–9.
17. Oliver CJ, Fisher D, Beckett R. A comparison of rapists and sexual murderers on demographic and selected psychometric measures. Int J Offender Ther Comp Criminol 2007;51(3):298–312.
18. Knight RA, Guay JP. The role of psychopathy in sexual coercion against women. In: Patrick CJ, editor. Handbook of psychopathy. New York, NY: Guilford Press, 2006;512–32.
19. Hare RD. The Hare psychopathy checklist—revised. Toronto, ON, Canada: Multi Health Systems, 2003.
20. Brown SL, Forth AE. Psychopathy and sexual assault: static risk factors, emotional precursors and rapist subtypes. J Consult Clin Psychol 1997;65(5):848–57.
21. Habermeyer E, Herpertz S. Bedeutung des ''psychopathy''-Konzepts von Hare für sexualstraftaten. In: Schläfle D, Häßler F, Fegert JM, editors. Sexualstraftaten. Stuttgart, Germany: Scheithauer, 2005;131–42.
22. Hill A, Habermann N, Berner W, Briken P. Psychiatric disorders in single and multiple sexual murderers. Psychopathology 2007;40(1):22–8.
23. Briken P, Habermann N, Kafka MP, Berner W. The paraphilia-related disorders: an investigation of the relevance of the concept in sexual murderers. J Forensic Sci 2006;51(3):683–8.
24. Briken P, Habermann N, Berner W, Hill A. The influence of brain abnormalities on psychosexual developement, criminal history and paraphilias in sexual murderers. J Forensic Sci 2005;50(5):1204–8.
25. Hill A, Habermann N, Berner W, Briken P. Sexual sadism and sadistic personality disorder in sexual homicide. J Personal Disord 2006;20(6):671–84.
26. Briken P, Habermann N, Berner W, Hill A. XYY chromosome abnormality in sexual homicide perpetrators. Am J Med Genet B Neuropsychiatr Genet 2006;141B(2):198–200.
27. Hill A, Habermann N, Klusmann D, Berner W, Briken P. Criminal recidivism in sexual homicide perpetrators. Int J Offender Ther Comp Criminol 2008;52(1):5–20.
28. Hill A, Ujeyl M, Habermann N, Briken P, Berner W. Schuldfähigkeit bei sexuellen Tötungsdelikten. Eine empirische Untersuchung. Fortschr Neurol Psychiatr 2008;76(6):343–53.
29. Ujeyl M, Habermann N, Briken P, Berner W, Hill A. Sexuelle tötungsdelikte—psychiatrische störungen, prognostische merkmale und rückfälligkeit bei yätern aus dem straf- und maßregelvollzug. Nervenarzt 2008;79(5):587–93.
30. Spehr A, Hill A, Habermann N, Briken P, Berner W. Sexual murderers with adult or child victims: are they different? Sex Abuse 2010;22(3):290–314.
31. Ressler RK, Burgess AW, Douglas JE. Sexual homicide: patterns and motives. Lexington, MA: Lexington Books, 1988.
32. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th edn. Washington, DC: American Psychiatric Association, 2000.
33. First MB, Gibbon M, Spitzer RL, Williams JBW. Structured clinical interview for DSM IV Axis II disorders (SCID-II). Washington, DC: American Psychiatric Publishing, 1997.
34. Hart S, Cox DN, Hare RD. Psychopathy checklist revised (PCL-R). New York, NY: Multi-health Systems, 1991.
35. Cooke DJ, Michie C. Refining the construct of psychopathy: towards the hierarchical model. Psychol Assess 2001;13:171–88.
36. Krafft-Ebing R. Psychopathia sexualis. Munich, Germany: Matthes & Seitz, 1984.
37. Hill A, Briken P, Berner W. Lust-voller schmerz. Gießen, Germany: Psychosozial, 2008.
38. Firestone P, Bradford JM, Greenberg DM, Nunes KL. Differentiation of homicidal child molesters, nonhomicidal child molesters, and nonoffenders by phallometry. Am J Psychiatry 2000;157(11):1847–50.
39. Seto MC, Barbaree HE. The role of alcohol in sexual aggression. Clin Psychol Rev 1996;15(6):545–66.
40. Salter D, McMillan D, Richards M, Talbot T, Hodges J, Bentovim A, et al. Development of sexual abusive behaviour in sexually victimised males. A longitudinal study. Lancet 2003;361(9356):471–6.
41. Brittain RP. The sadistic murderer. Med Sci Law 1970;10:198–207.

Additional information and reprint requests:
Judith Koch, M.A.
University Hospital Hamburg-Eppendorf
Institute for Sex Research and Forensic Psychiatry
Martinistraße 52
20246 Hamburg
Germany
E-mail: jukoch@uke.uni-hamburg.de