

Helinä Häkkänen-Nyholm,^{1,2} Ph.D.; Ghitta Weizmann-Henelius,³ Ph.D.; Stephan Salenius,⁴ Ph.D.; Nina Lindberg,⁵ Ph.D.; and Eila Repo-Tiihonen,⁶ Ph.D.

Homicides with Mutilation of the Victim's Body

ABSTRACT: Information on homicide offenders guilty of mutilation is sparse. The current study estimates the rate of mutilation of the victim's body in Finnish homicides and compares sociodemographic characteristics, crime history, life course development, psychopathy, and psychopathology of these and other homicide offenders. Crime reports and forensic examination reports of all offenders subjected to forensic examination and convicted for a homicide in 1995–2004 ($n = 676$) were retrospectively analyzed for offense and offender variables and scored with the Psychopathy Check List Revised. Thirteen homicides (2.2%) involved mutilation. Educational and mental health problems in childhood, inpatient mental health contacts, self-destructiveness, and schizophrenia were significantly more frequent in offenders guilty of mutilation. Mutilation bore no significant association with psychopathy or substance abuse. The higher than usual prevalence of developmental difficulties and mental disorder of this subsample of offenders needs to be recognized.

KEYWORDS: forensic science, forensic psychiatry, homicide, mutilation, psychopathology, offender profiling, psychopathy

Human mutilation is defined as “the act of depriving an individual of a limb, member, or other important part of the body; or deprivation of an organ: or severe disfigurement” and it covers the term “dismemberment” (1). In previous research, criminal mutilation has been classified into defensive (where the motive is to get rid of the body), aggressive (where the killing and mutilation is brought about by a stage of outrage), and offensive (including lust and necrosadistic murders) (2,3). Defensive mutilation is often found to be the most common form of mutilation (3,4), but there are also studies indicating that offensive mutilation is equally common (2).

The rate of homicides per capita in Finland was 2.6/100,000 citizens in 2006 (5), which placed Finland sixth among European Union countries after Estonia, Lithuania, Latvia, Bulgaria, and Romania. Thus, in Finland, the rate of homicides for this decade has been about double the rate in West European democracies and three times the rate in other Nordic countries (6). However, homicide with mutilation of the victim's body is still rare, both in Finland and abroad. A previous study (3) identified 22 homicides with criminal mutilation in Sweden during 1961–1990. Konopka et al. (4) identified 23 cases examined at the Department of Forensic Medicine in Cracow during 1968–2005. Puschel and Koops (2) identified 31 cases in Hamburg in the period from 1959 to 1987 and emphasized that cases with criminal mutilation had increased in the last year. Also, Watanabe and Tamura (7) showed that in Japan there had been a sharp increase in the number of such cases with approximately 60 cases occurring in 1990–1999.

Information on the background of offenders accused of criminal mutilation or necrophilia is sparse and often based on medicolegal case reports (8–10), or descriptive studies with small samples and no comparison group (e.g., 3, 7, 11). For example, Ressler et al. (11) showed that in a sample of sexual murderers, mutilation was significantly associated with childhood and adolescent sexual victimization. Other than this study, there are no empirical studies on the background or psychological characteristics of homicide offenders who mutilate the victim's body. Therefore, it remains uncertain to what degree these offenders differ from other homicide offenders.

Furthermore, although criminal mutilation can be considered sadistic, cruel, and instrumental, criminal mutilation has never been studied with regard to psychopathic personality disorder, which has repeatedly been associated with sadistic and sexual violence (12–16). Psychopathy is defined as a constellation of affective, interpersonal, and behavioral characteristics including impulsivity, irresponsibility, shallow emotions, lack of empathy, guilt, or remorse, pathological lying, and the persistent violation of social norms and expectations (17,18). One of the most striking things about psychopaths is their readiness to engage in dispassionate and instrumental violence (19,20).

This study was conducted to investigate the prevalence and nature of criminal mutilation in Finnish homicides. Furthermore, the aim was to examine if offenders accused of a homicide with mutilation differ from other homicide offenders in terms of sociodemographic characteristics, crime history, life course development, psychopathology, and psychopathy.

Methods

Sample

The material of this study was register-based and nationwide. Information concerning homicides and the offenders was obtained from the Finnish National Authority for Medicolegal Affairs (NAMA), which organizes the forensic psychiatric examinations in Finland. According to Finnish law, courts decide whether a forensic

¹Forensic Laboratory, National Bureau of Investigation, PO Box 285, Vantaa 01301, Finland.

²Department of Psychology, PO Box 9, University of Helsinki, Helsinki 00014, Finland.

³Vanha Vaasa Hospital, PO Box 13, Vaasa 65381, Finland.

⁴Vantaa Prison, PO Box 160, Vantaa 01361, Finland.

⁵Department of Adolescent Psychiatry, Helsinki University Central Hospital, Hospital for Children and Adolescents, PO Box 280 00029 HUS, Finland.

⁶University of Kuopio, Niuvanniemi Hospital, PO Box 70240, Finland.

Received 7 Feb. 2008; and in revised form 24 July 2008; accepted 3 Aug. 2008.

psychiatric examination is needed. After deciding on the examination, the court asks the NAMA to arrange it. Forensic psychiatric examinations are inpatient evaluations lasting 6 weeks on average, and include data gathered from various sources: interviews of relatives; review of medical, criminal, and military records; psychiatric evaluation; standardized psychological testing; interviews by a multiprofessional team; physical evaluation; and observation by hospital staff. The final forensic psychiatric report includes an opinion on the level of criminal responsibility, a possible psychiatric diagnosis, and an assessment as to whether the offender fulfills criteria for involuntary psychiatric care.

Forensic examination reports of all offenders prosecuted for a homicide between 1995 and 2004 and subjected to a forensic psychiatric examination were collected from the NAMA archives. Criminal reports of these homicides were collected from the Finnish police computerized Criminal Index File. During 1995–2004, altogether 1046 persons were prosecuted for homicide (Statistics Finland, 2006); of these persons, 750 had been referred to a forensic psychiatric examination (71.7%). They had been prosecuted for 701 homicides involving 724 victims. Collection of the subjects' criminal records from the Legal Register Centre showed that of the 750 persons in the data 74 were eventually not convicted of the homicide (e.g., the person was convicted of aggravated assault, instead) in the court or they did not have a criminal record (e.g., due to being deceased). These cases were excluded from the present data. Thus, the final data consisted of 633 homicides with 689 victims and 676 offenders who had been convicted by the court. The NAMA, Legal Register Centre, and the Ministry of Interior approved the study.

The criminal reports and forensic examination reports were retrospectively analyzed for the presence of the following information: sociodemographic characteristics, crime scene behavior, role of alcohol and drugs in the offense, and post-offense behavior. The inter-rater reliability of the variables has been assessed in our previous studies, where partly the same data and the same data collection procedure have been used (21). In this study, cases of criminal mutilation of the human body were identified from the data and this group was compared with the rest of the homicide cases in the data. To examine the nature of criminal mutilation, in this study, criminal mutilation was classified into defensive, aggressive, offensive, and psychotic (i.e., where the motive relates to the offender's psychotic delusions). The relation between victim and offender was divided into the following groups: family member, (ex)intimate, acquaintance, and stranger. A case was referred to the "acquaintance" group, if the parties knew each other at least by name or by sight, and the "stranger" group if they did not know each other at all.

All forensic examination reports were analyzed also for variables covering the offender characteristics and life course development (22). Diagnoses made during the examinations were based on DSM III R (23) criteria until 1996. Since then, ICD 10 (24) has been used concurrently with DSM IV (25). In Finland, the levels of criminal responsibility are "with criminal responsibility," "with reduced criminal responsibility," and "lacking criminal responsibility." Life course development (e.g., special education, institutional placement, or parental alcohol abuse, etc.) was rated based on information from the forensic examination reports. Data on previous offenses was based on official criminal records (note: Finnish criminal records lack information on crimes committed before the age of 15) and self-reported criminality.

The Hare Psychopathy Checklist-Revised (PCL-R) (18) is a 20-item symptom rating scale of psychopathic personality disorder where the lifetime presence of each item is scored on a three-point scale (0 absent, 1 possibly or partially present, and 2 definitely

present). Although PCL-R assessments should be based both on a review of file information and a semi-structured interview with the offender, research has consistently shown that assessments based solely on file information are highly similar to ratings including an interview and provided that there is sufficient file information are appropriate in the absence of an interview (26–29). The total score (ranging from 0 to 40) provides an estimate of the extent to which a given individual matches the prototypical psychopath and the two factor scores of the PCL-R reflect the interpersonal and affective features (factor 1) and the socially deviant features (factor 2) of psychopathy (18). In line with recommendations of a lower PCL-R cut-off score for European populations (30–32), a cut-off score of 26 has often been used in studies performed in Scandinavian countries (31,33). In the present study, both cut-off scores were used.

As a part of another study on psychopathy in Finnish homicide offenders, most of the above-mentioned forensic examination reports have been reviewed and scored for the PCL-R by trained raters. The inter-rater reliability was verified in this setting after workshop attendance and several training sessions in the administration of the checklist. For a random sample of 20 cases, the inter-rater agreement between nine raters for the PCL-R total score was 0.89, for factor 1, 0.72, and for factor 2, 0.92. Due to practical reasons, the raters could not be kept blind to the general description of the homicide. Thus, although they did not receive the crime report, the forensic examination report includes a short description of the crime itself. However, the PCL-R raters were kept blind to the ratings regarding the offense, clinical, and life course data, which had been completed before the beginning of the PCL-R ratings. Thus, the homicides were coded without knowledge of the topic of the present study or the PCL-R ratings. For the purposes of the present study, the PCL-R ratings of the perpetrators with criminal mutilation were compared to a sample of all homicide offenders subject to forensic examination in 1998–2000. The data were analyzed using the chi-squared test and Fisher's exact test, and independent-samples *t*-test for parametric variables. Findings were considered significant if $p < 0.05$.

Results

In the 10-year sample, there were 13 cases of homicide (2.2%) with mutilation of the victim's body (all involved one victim). In 4/13 cases, there were multiple offenders. The total number of examined and convicted offenders was 14 (in one homicide, two offenders were subjected to forensic psychiatric examination and convicted). Of the cases, 8/13 (61.5%) were classified as defensive mutilation and two (15.4%) as offensive mutilation. Furthermore, three cases (23.1%) were classified as psychotic mutilation due to the fact that the offender was diagnosed with schizophrenia and had delusions present at the time of the killing and mutilation. Three of 13 (23.0%) victims were female. The victim's average age at the time of the offense was 40.73 years (SD = 14.30), with a range of 23–75 years. These characteristics did not significantly differ from the comparison group. In 4/12 known cases (33.3%), the number of body parts removed was one, and in 5/12 cases (42%), it was at least five. In none of the cases was the victim alive when the mutilation started; usually the body was mutilated during the day after the killing. In 8/13 cases (61.5%), the body parts were left in one location.

Table 1 sets out the frequencies of offense characteristics. The breakdown of offender/victim relationship revealed that none of the victims were strangers and nearly half were partners or family members. Multiple offenders, victim moved from the homicide scene, sexual behavior (penetration or cutting the victim's genitals),

TABLE 1—Offense characteristics of the samples.

	Mutilation Homicide n/n (%)	Comparison Group n/n (%)	Statistics*	Effect Size (ϕ)	<i>p</i> Value
Victim–offender relationship					
Stranger	–	55/673 (8.2)	†	–0.041	0.614
Relative	3/13 (23.1)	73/673 (10.8)	†	0.053	0.164
(Ex)intimate partner	2/13 (15.4)	141/673 (20.9)	†	–0.019	0.623
Acquaintance	8/13 (61.5)	377/673 (56.0)	0.021	0.015	0.691
At least two offenders	4/13 (30.8)	76/544 (12.3)	†	0.079	0.047
Body found at the scene of the killing	6/13 (46.2)	552/620 (89.0)	22.414	–0.188	<0.001
Sexual behavior prior, during, or after killing	5/13 (38.5)	13/620 (2.1)	60.947	0.310	<0.001
Sharp weapon	12/13 (92.3)	353/616 (57.3)	†	0.101	0.011
Offender under the influence of alcohol	9/13 (75.0)	508/632 (80.4)	†	–0.018	0.643
Offender under the influence of drugs	2/12 (16.7)	55/534 (9.9)	†	0.031	0.362

*Likelihood ratio chi-squared test used for comparing the groups, $df = 1$, two-tailed.

†Fisher's exact test used.

TABLE 2—Demographics, life course development, and crime history of the samples.

	Mutilation	Other	Statistics*	Effect Size (ϕ)	<i>p</i> Value
Age, years: mean (SD)	31.21 (8.93)	34.58 (11.75)	$t = 1.065$	–0.286 [‡]	0.287
Female	4/14 (28.6)	82/662 (12.4)	†	0.069	0.072
Institutional or foster home placement in childhood	6/14 (42.9)	150/654 (22.9)	3.039	0.067	0.081
Special education	7/13 (53.8)	181/635 (28.5)	3.973	0.078	0.046
Physical violence in family of origin	4/12 (33.3)	250/603 (41.5)	†	–0.023	0.769
Sexual abuse during childhood	2/12 (16.7)	27/589 (4.6)	†	0.079	0.053
Mental health contact prior to age 18	7/14 (50.0)	157/651 (24.1)	4.942	0.086	0.026
Unemployed	8/13 (61.5)	392/646 (60.7)	0.004	0.002	0.950
Lives in partner relationship	5/12 (38.5)	295/604 (48.8)	0.549	–0.030	0.459
Has children	4/14 (28.6)	300/656 (45.7)	†	0.009	0.202
Criminal history	9/14 (64.3)	465/662 (70.2)	0.232	–0.019	0.630
Violent criminal history	8/14 (57.1)	335/652 (51.4)	0.182	0.017	0.669

*Likelihood ratio chi-squared test, $df = 1$ and independent-samples *t*-test used for comparing the groups, two-tailed.

†Fisher's exact test used.

‡Cohen's *d*.

and use of a sharp instrument were significantly more frequent in homicides involving mutilation than others. The only variable to have an effect size close to large was sexual behavior (34). Demographics, life course development, and crime history of the sample are presented in Table 2.

The offenders' average age bore no significant association with mutilation. Of the offenders guilty of mutilation, 5/14 were at most 25 years old. Similarly to other homicide offenders, a large proportion of the offenders guilty of mutilation had adverse childhood experiences. Five of 12 cases in which this information was known (41.7%) were known to have been violent at school, while the corresponding percentage among the other homicide offenders was 25.4%. Physical violence in family of origin was, however, more prevalent in the other homicide offenders.

At the time of the killing, the majority of the offenders guilty of mutilation were unemployed; none had an occupation which required anatomical knowledge or handling corpses. As in the comparison group, most of the offenders guilty of mutilation homicide had a criminal history. In total, three (37.5%) were regarded as "early starters," in other words having committed crimes before the age of 18. Table 3 sets out the frequencies of psychopathology.

The average IQ was higher among the offenders guilty of mutilation. The size of this effect was large. There was a higher prevalence of lifetime contacts with mental health services among the offenders with mutilation homicide: only one of them had not ever been in contact with the mental health services. Ten out of 14 offenders had been inpatients; four of these at an age of under 16 years; 7/14 had contacts with mental health services before the

age of 16 (earliest being at the age of 6). Three of these 14 offenders (23.1%) were known to have an ongoing contact with the mental health services at the time of the killing. Eleven of 14 offenders met diagnostic criteria for personality disorder: Ten (71.4%) met the criteria for cluster B personality disorder (histrionic, narcissistic, antisocial, and borderline personality disorders); three (21.4%) for cluster A personality disorder (schizotypal, paranoid, and schizoid); and one (7.1%) for cluster C personality (dependent, obsessive-compulsive, and avoidant). All individuals had received at least one psychiatric diagnosis (vs. 95.6% in the comparison group). The average PCL-R total adjusted score for offenders with mutilation homicide was 22.55 (range 3.2–37.8). The effect size for factor 1 scores was medium suggesting a difference in scoring on factor 1. Removing offenders with schizophrenia from this analysis had no effect. Finally, offenders guilty of a mutilation homicide were significantly less frequently considered responsible for the offense, compared with the other homicide offenders (35.7% vs. 66.3%, $\chi^2 = 5.670$, $p < 0.01$, $\phi = -0.092$). This relates partly to the higher number of offenders diagnosed with schizophrenia in this group.

Discussion

This study focused on criminal mutilation, which is a poorly understood phenomenon (35). To the best of our knowledge, this investigation is the most thorough study conducted regarding the offense and offender characteristics of homicide offenders with human body mutilation, and the very first study on mutilation and psychopathy. Our findings show that over half of the cases were

TABLE 3—Psychopathology in the sample.

	Mutilation <i>n</i> (%)	Comparison Group <i>n</i> (%)	Statistics*	Effect size (ϕ)	<i>p</i> Value
IQ: mean (SD)	101.17 (11.2)	94.19 (13.6)	$Z = -1.819$	0.513 [‡]	0.069
Lifetime contact with mental health services	12/13 (92.3)	388/583 (66.6)	†	0.080	0.070
Inpatient mental health contact	10/14 (71.4)	239/592 (40.0)	0.026	0.095	0.026
Self-destructive behavior	9/14 (64.3)	242/637 (38.0)	3.998	0.078	0.046
Uses drugs	9/14 (64.3)	221/548 (40.3)	3.241	0.076	0.072
Alcohol dependency	11/14 (78.6)	439/659 (66.6)	†	0.036	0.407
Drug dependency	5/14 (35.7)	139/650 (21.4)	1.666	0.050	0.197
Personality disorder	11/14 (78.6)	485/656 (73.9)	†	0.015	1.000
Schizophrenia	4/14 (28.6)	64/656 (9.8)	†	0.089	0.044
Organic brain disorder	4/14 (28.6)	55/594 (9.3)	†	0.098	0.038
PCL-R: mean (SD)	22.55 (11.84)	19.54 (9.99) [‡]	$Z = -0.966$	0.254 [‡]	0.334
PCL-R ≥ 26	7/14 (50.0)	59/176 (33.5)	$Z = -0.966$	0.090	0.34
PCL-R ≥ 30	4/14 (28.6)	37/176 (21.0)	†	0.048	0.213
PCL-R facet 1: mean (SD)	3.70 (3.27)	2.49 (2.59) [§]	$Z = -1.272$	0.370	0.203
PCL-R facet 2: mean (SD)	6.00 (2.18)	5.69 (2.80) [§]	$Z = -0.468$	0.111	0.640
PCL-R facet 3: mean (SD)	6.43 (3.64)	5.99 (3.47) [§]	$Z = -0.593$	0.121	0.553
PCL-R facet 4: mean (SD)	5.26 (3.70)	4.48 (3.09) [§]	$Z = -0.810$	0.211	0.418
PCL-R factor 1: mean (SD)	10.14 (4.90)	7.99 (4.48) [§]	$Z = -1.640$	0.439	0.101
PCL-R factor 2: mean (SD)	11.59 (6.86)	10.29 (6.01) [§]	$Z = -0.818$	0.190	0.413

*Likelihood ratio chi-squared test, $df = 1$ and Mann-Whitney *U*-test used for comparing the groups, two-tailed.

†Fisher's exact test.

‡Cohen's *d*.

§The sample consisted of offenders prosecuted between 1998 and 2000, $n = 179$.

classified as defensive mutilation. It has been suggested that in some of these cases the rational motive for the subsequent mutilation of the victim's body is to eliminate biological stains suitable for forensic DNA analysis (36). The present sample consisted of one such case. The present study also suggests that psychosis as the motivation in mutilation can be defined as a distinct group. This owes partly to the difficulties in interpreting behavioral motives in homicides committed by subjects with schizophrenia (37).

In line with previous research (e.g., 4, 7), all of the offenders in this study knew their victims, but it is of note that there was a rather high prevalence of victims who were family members or partners. Also, the prevalence of females was higher than previously reported (2-4). Altogether, the results suggest a slightly different victim character in the Finnish mutilation homicides. This relates most likely to the higher than previously reported proportion of offenders with schizophrenia in the present sample (2,3). Noteworthy is also the finding that sexual behavior was significantly more frequently related to homicidal mutilation than in other homicide cases.

The high prevalence of occupational access to corpses among perpetrators of criminal mutilation and necrophilia has been emphasized by Rosman and Resnick (38) and Rajs et al. (3), but this did not find support in the present study. Overall, compared to other homicide offenders, the life course development and characteristics of offenders guilty of criminal mutilation were more frequently marked with educational problems, early and inpatient mental health contacts, and self-destructiveness. There were no offenders who had not received any psychiatric diagnosis in the examination.

The results suggest that homicide offenders guilty of mutilation of the victim's body do score similarly on the PCL-R as other Finnish homicide offenders. There was, however, some indication of their scoring slightly higher on the interpersonal and affective attributes of psychopathy. This is in line with previous research suggesting that due to these interpersonal characteristics, psychopaths are more prone to engage in dispassionate and instrumental

violence (39,40), which in some instances may serve a thrill-seeking purpose.

The study has limitations that should be considered when interpreting the results. The total sample size of homicides in this study is large. However, the sample size of the mutilation homicides is smaller than ideal which owes to the rare occurrence of these cases. The data consists of the known solved mutilation homicides during the 10-year time frame, but there is no national register verifying that it comprises all the cases in Finland during that time. However, in Finland approximately 90% of homicide cases are solved by the police and according to Finnish Law, both the prosecutor and the defense are allowed to request forensic examination. The overall quality and reliability of Finnish forensic psychiatric evaluations are considered high by both courts and scientists (41).

Ritual mutilation has been for centuries associated with religious sacrifice; dismemberment of a body part exists in certain cultures as a punishment for a crime and in several cultures, body parts are removed for cosmetic or medical purposes. However, criminal mutilation is often considered as one of the darkest and most grotesque deeds by a human being. Our findings suggest the need for recognizing the even higher than usual prevalence of developmental and life course difficulties and psychopathology in the lives of these homicide offenders. Furthermore, for the purposes of police enquiry in cold mutilation homicide cases, our results further suggest that the offender is always known to the victim, in nearly half of the cases being a family member or a partner.

Acknowledgments

This study was supported by a personal grant for the first author by the Academy of Finland (Grants Nos. 75697 and 211176). We thank the National Authority for Medicolegal Affairs, Ministry of Interior, Legal Register Centre, and Olli Vaurio, M.D., Martti Korpela, M.D., Jüriloo Alo, M.D., Päivi Toivonen, M.D., as well as Psychologist Lasse Warjus, Taina Laajasalo, Mikko Ylpekkä, Camilla Hagelstam, and Tuija Rovamo for carrying out this study.

References

- Newman Dorland WA. *Dorland's illustrated medical dictionary*, 31st ed. Philadelphia: W.B. Saunders, 2007.
- Puschel K, Koops E. Dismemberment and mutilation. *Arch Kriminol* 1987;180(1-2):88-100.
- Rajs J, Lundstrom M, Broberg M, Lidberg L, Lindquist O. Criminal mutilation of the human body in Sweden—a thirty-year medico-legal and forensic psychiatric study. *J Forensic Sci* 1998;43(3):563-80.
- Konopka T, Strona M, Bolechala F, Kunz J. Corpse dismemberment in the material collected by the Department of Forensic Medicine, Cracow, Poland. *Leg Med (Tokyo)* 2007;9(1):1-13.
- Eurostat. Causes of death—standardised death rate (per 100,000 inhabitants), year 2000. European Commission, 2006.
- LaFree G, Drass KA. Homicide trends in Finland and 33 other nations since 1995: is Finland still exceptional? In: Lappi-Seppälä T, editor. *Homicide in Finland: trends and patterns in historical and comparative perspective*. Helsinki: The National Research Institute of Legal Policy, 2001;5-21.
- Watanabe K, Tamura M. Mutilation-murder cases in Japan. In: Farrington DP, Hollin CR, McMurrin M, editors. *Sex and violence*. New York, NY: Routledge, 2001;229-41.
- Di Nunno N, Constantinides F, Vacca M, Di Nunno C. Dismemberment: a review of the literature and description of 3 cases. *Am J Forensic Med Pathol* 2006;27(4):307-12.
- Sugiyama S, Tatsumi S, Noda H, Yamaguchi W, Izuwi W. Investigation of dismembered corpses found during the past 10 years in Osaka. *Acta Criminol Med Legal Jpn* 1995;61:192-200.
- Turk EE, Puschel K, Tsokos M. Features of homicide in cases of complete decapitation. *Am J Forensic Med Pathol* 2004;25(1):83-6.
- Ressler RK, Burgess AW, Hartman CR, Douglas JE, McCormack A. Murderers who rape and mutilate. *J Interpers Violence* 1986;1:273-7.
- Barbaree HE, Seto MC, Serin R, Amos N, Preston D. Comparisons between sexual and nonsexual rapist subtypes: sexual arousal to rape, offense precursors, and offense characteristics. *Crim Just Behav* 1994;21(1):95-114.
- Hare RD, Cooke DJ, Hart SD. Psychopathy and sadistic personality disorder. In: Millon T, Blaney PH, Davies RD, editors. *Oxford textbook of psychopathology*. New York, NY: Oxford University, 1999;555-84.
- Holt SE, Meloy JR, Strack S. Sadism and psychopathy in violent and sexually violent offenders. *J Am Acad Psych Law* 1999;27(1):23-32.
- Porter S, Campbell MA, Woodworth M, Birt AR. A new psychological conceptualization of the sexual psychopath. In: Columbus F, editor. *Advances in psychology research*. New York, NY: Nova Science, 2001;7.
- Porter S, Woodworth M, Earle J, Drugge J, Boer D. Characteristics of sexual homicides committed by psychopathic and nonpsychopathic offenders. *Law Hum Behav* 2003;27:459-70.
- Cleckley H. *The mask of sanity*, 5th ed. St. Louis, MO: Mosby, 1976.
- Hare RD. *The Hare psychopathy checklist, Revised*, 2nd ed. Toronto, ON: Multi-Health Systems, 2003.
- Cornell DG, Warren J, Hawk G, Stafford E, Oram G, Pine D. Psychopathy in instrumental and reactive violent offenders. *J Consult Clin Psychol* 1996;64(4):783-90.
- Williamson SE, Hare RD, Wong S. Violence: criminal psychopaths and their victims. *Can J Behav Sci* 1987;19:454-62.
- Häkkänen H, Laajasalo T. Homicide crime scene actions in a Finnish sample of mentally ill offenders. *Homicide Stud* 2006;10(1):33-54.
- Laajasalo T, Häkkänen H. Background characteristics of mentally ill homicide offenders—a comparison of five diagnostic groups. *J Forensic Psychiat Psychol* 2004;15:451-74.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 3rd ed. (DSM III R). Washington, DC: American Psychiatric Association, 1987.
- World Health Organization. *The ICD 10 classification of mental and behavioural disorders*. Geneva: World Health Organization, 1992.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 4th ed. (DSM III R). Washington, DC: American Psychiatric Association, 1994.
- Alterman AI, Cacciola JS, Rutherford MJ. Reliability of the revised psychopathy checklist in substance abuse patients. *Psych Assess* 1993;5(4):442-8.
- Grann M, Långström N, Tengström A, Stålenheim E. Reliability of file-based retrospective ratings of psychopathy with the PCL-R. *J Pers Assess* 1998;70:416-26.
- Wong S. Is Hare's psychopathy checklist reliable without the interview? *Psych Rep* 1988;62:931-4.
- Mossman D. Assessing predictions of violence: being accurate about accuracy. *J Consult Clin Psychol* 1994;62:783-92.
- Cooke DJ, Michie C. Psychopathy across cultures: North America and Scotland compared. *J Abnorm Psychol* 1999;108(1):58-68.
- Grann M, Långström N, Tengström A, Kullgren G. Psychopathy (PCL-R) predicts violent recidivism among criminal offenders with personality disorders in Sweden. *Law Hum Behav* 1999;23(2):205-17.
- Sullivan EA, Kosson DS. Ethnic and cultural variations in psychopathy. In: Patrick CJ, editor. *Handbook of psychopathy*. New York, NY: Guilford Press, 2006;437-58.
- Rasmussen K, Storsaeter O, Levander S. Personality disorders, psychopathy, and crime in a Norwegian prison population. *Int J Law Psych* 1999;22(1):91-7.
- Cohen J. *Statistical power analysis for the behavioral sciences*, 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates, 1988.
- Meloy JR. The nature and dynamics of sexual homicide: an integrative review. *Aggress Violent Behav* 2000;5:1-22.
- Karger B, Rand SB, Brinkmann B. Criminal anticipation of DNA investigations resulting in mutilation of a corpse. *Int J Legal Med* 2001;113:1437-596.
- Laajasalo T, Häkkänen H. Psychotic symptoms and excessive violence in homicide offenders with schizophrenia. *Crim Behav Ment Health* 2006;16:242-53.
- Rosman JP, Resnick PJ. Sexual attraction to corpses: a psychiatric review of necrophilia. *Bull Am Acad Psych Law* 1989;17:153-63.
- Porter S, Woodworth M. Psychopathy and aggression. In: Patrick CJ, editor. *Handbook of psychopathy*. New York, NY: Guilford Press, 2006;481-94.
- Woodworth M, Porter S. In cold blood: characteristics of criminal homicides as a function of psychopathy. *J Abnorm Psychol* 2002;111:436-45.
- Eeronen M, Repo E, Vartiainen H, Tiihonen J. Forensic psychiatric organization in Finland. *Int J Law Psych* 2000;23:541-6.

Additional information and reprint requests:

Helinä Häkkänen-Nyholm, Ph.D.

Forensic Laboratory

National Bureau of Investigation

PO Box 285

FIN-01301

Vantaa

Finland

E-mail: helina.hakkänen@helsinki.fi