



Gender differences in legal outcomes of filicide in Austria and Finland

S. Amon¹ · H. Putkonen^{2,3} · G. Weizmann-Henelius^{2,4} · P. Fernandez Arias^{5,6} · C. M. Klier⁷

Received: 14 December 2017 / Accepted: 24 May 2018 / Published online: 1 June 2018

© Springer-Verlag GmbH Austria, part of Springer Nature 2018

Abstract

Female offenders of filicide have been found to receive more lenient legal handling than male offenders. We aimed to discover these possible gender differences in the legal outcome of filicide cases. This was a binational register-based study covering all filicide offenders in Austria and Finland 1995–2005. We examined the legal outcomes of the crimes of all living offenders (64 mothers and 26 fathers). Mothers received a conviction of murder and life imprisonment less often than fathers. Within psychotic and personality-disordered offenders, infanticides, and offenders convicted for life, gender differences were less evident. Even though there seems to be some gender differences within the legal outcomes of filicide, ruling seemed more consistent than expected within distinct subgroups of offenders. Gender-based assumptions should not hinder equal and just handling of filicide cases.

Keywords Filicide · Child murder · Infanticide · Gender · Legal outcome

Introduction

The legal procedures applied to filicide offenders in different countries have been discussed, particularly regarding infanticide (homicide of children younger than a year old) in Canada

This article is part of the Topical Collection on Filicide
Guest Editor: Claudia Klier

Highlights • A general gender difference did prevail in the legal outcomes of the offenders in the present study.

- Within the subgroup of infanticide, judges seemed to rule more consistently than previously thought.
 - Neonaticide legislation, which is only pertinent to mothers, affects the rulings.
-

✉ P. Fernandez Arias
paula.fernandez@umayor.cl

¹ Faculty of Psychology, University of Vienna, Vienna, Austria

² Vanha Vaasa Hospital, Vaasa, Finland

³ Department of Psychiatry, Helsinki University Central Hospital, Helsinki, Finland

⁴ Department of Psychology and Logopedics, Åbo Akademi University, Turku, Finland

⁵ Society & Health Research Center, Universidad Mayor, Santiago, Chile

⁶ Department of Social Work, Monash Deakin Filicide Research Hub, Monash University, Melbourne, Australia

⁷ Department of Paediatrics and Adolescent Medicine, Medical University of Vienna, Vienna, Austria

and the USA, focusing on female offenders (Laporte et al. 2003; Oberman 2003; Spinelli 2004). Many US studies have shown women receive milder sentencing outcomes than men (Daly and Bordt 1995; Spohn 1999; Steffensmeier et al. 1993; Steffensmeier et al. 1998; Wiest and Duffy 2013). Female offenders of filicide in England, Wales, and Scotland receive community sentences or hospital disposals more often than male offenders, who in turn receive custodial sentences more often (Flynn et al. 2007; Marks and Kumar 1993; Marks and Kumar 1996). Furthermore, infanticides have been found to be ruled as murder less often in female than in male perpetrated cases in England and Wales (Brookman and Nolan 2006). It has previously been argued that infanticide offenders receive disparate treatment under the law depending on gender, though the rates are similar for men and women (Dixon et al. 2014), and a sharing of knowledge between psychiatry and the law has been called for (Spinelli 2004). From the perspective of theory, paternalism and motherhood discourses about filicide in the Anglo-American legal system have been discussed (Gurevich 2008). To the best of our knowledge, life imprisonment associated with filicide has not been systematically studied even though some descriptions from the USA, Finland, and Canada do exist (Charatan 2002; Kauppi et al. 2010; Laporte et al. 2003).

Some studies have argued that the reasons for more lenient legal handling of female offenders stem from a range of mitigating factors: crime type, offense seriousness, level of education, and having dependents (Putkonen et al. 2011). These have all been shown to affect the likelihood of

imprisonment and sentence length in countries like the USA, Australia, and Sweden (Crew 1991; Doerner 2009; Rodriguez et al. 2006; Sentencing Advisory Council 2010; Yourstone et al. 2008). Female offenders, particularly filicidal women, are more likely to receive hospital orders because of mental illness compared to male offenders (Orthwein et al. 2010; Wilczynski 1997; Yourstone et al. 2008). Yourstone et al. (2008) found a higher likelihood of legal insanity decisions for women than for men and concluded that the disparity could, at least in part, be explained by gender-related bias in the judicial system in Sweden. Sidebotham and Retzer (2018) found that even though maternal mental health issues were highly prevalent in maternal filicide events, mental health issues were hardly ever identified before a child death and, in retrospect, obvious signs were missed by professionals.

In both Austria and Finland, filicide is usually tried as murder, manslaughter, or involuntary manslaughter depending on intentionality, but Finnish law considers the brutality of the crime. That is, murder can be charged not only for strong intentionality but also severe brutality. However, neonaticide, the killing of a newborn within its first 24 h of life, has a separate status in the legislation of both countries. A crime committed by a woman, who in a postpartum state of exhaustion or anxiety kills her child, will be ruled neonaticide, and she will be subject to no fewer than 4 months imprisonment in Finland or 1 year in Austria, and a maximum of no more than 4 years in Finland, 5 years in Austria. In some countries (e.g., Canada), the Criminal Code provides for a defense of “Infanticide” with comparable concepts.

The present paper forms part of a comprehensive study on filicide in Austria and Finland from 1995 to 2005, The European Collaboration for the Understanding of Filicide. The goal of the collaboration is to form a wide-ranging, in-depth, interdisciplinary, and contemporary description of filicide and to aid in the prevention of this crime. The aim of the present paper was to investigate putative gender differences in the legal outcomes of filicide, with a separate look at infanticide, and examine mental health and legal discourses. We hypothesized that filicides by mothers would be investigated as murder less often and would receive more lenient sentences than fathers and that the sentences for mothers would be more treatment oriented. We also wanted to investigate the possible gender differences of the outcomes of offenders with a personality or psychotic disorder and the subgroup of offenders who were imprisoned for life to see if the hypotheses sustained in these.

Method

The current study was register-based, comprehensive, and nationwide in Austria and Finland and covered all filicides 1995 to 2005 inclusive. The effective definition of filicide was a

parent killing her/his child, when the child was younger than 18 years. Parents included biological, step, or foster parents. To be defined as a stepparent, an actual longstanding live-in parental relationship had had to exist.

Data on children who died before the age of 18 were gathered from coroner reports and death certificates from the Coroner Institutions of Austria and from Statistics Finland, respectively. Key national results have previously been reported and no major national differences to obstruct joint inspection were found (Putkonen et al. 2009). Austria and Finland seem to be similar enough for joint research of filicide, yet we cannot rule out that cultural differences might have had some impact on the methodology. Both countries have reliable registers, with coverage for births and deaths of over 90% in both countries (World Health Organization 2005). The clearance rate during 1995–2005 was 90% in Austria and 92% in Finland during 1995–2004 (Federal Ministry of Internal Affairs 2017; Statistics Finland 2005). Hence, the rate of hidden criminality for homicide is low in both countries.

The legislation is based on written law and statutes, not on common law in both countries. The offenders will be tried on the basis of full criminal responsibility unless proven otherwise in both Austria and Finland. The courts decide if a forensic psychiatric examination is needed to assess criminal responsibility and the practice of forensic examinations is very similar in the two countries (Putkonen et al. 2009). In Austria, forensic psychiatric examinations are done by independent clinical psychiatrists and psychologists working for the government, to diagnose the mental health status (based in Austria on §11 StGB) at the time of offense, to discern between diminished, full or no responsibility (Doralt 2017). A perpetrator, who is found not to be responsible (not guilty by reason of insanity) for the crime, because he/she is not able to understand the unlawfulness of his/her acting or is not able to act on this discernment, has to be sentenced to hospital detention order (§21.1 StGB) instead of imprisonment. If the offender is found diminished responsible (not able to act on discernment), he/she has to be sentenced with imprisonment and a hospital detention order (§21.2 StGB). The examination has to be done before judgment is passed. The definition of diminished or no responsibility is the same in Finland (Eronen et al. 2012) but without the same consequences on the sentences; a diminished responsibility can result in a less severe sentence.

In Austria, there were 86 and in Finland 66 victims within 11 years counted. Considering the filicide rate, we took the average population number from all children between 0 and 18 years, which was 1,737,439 in Austria and 1,124,779 (statistics only 0–17 years available) in Finland, so there was an annual filicide rate of 0.45 per 100,000 in Austria and 0.53 per 100,000 in Finland.

From the 152 victims, there were two or more victims in 28 events, totaling 74 filicidal events in Austria and 50 in Finland. The original material consisted of all filicide

offenders between 1995 and 2005, inclusive ($N = 124$, 79 mothers and 45 fathers). These 124 offenders had a total of 152 victims. Before the juridical processes commenced, 14 (18%) of the female offenders and 18 (40%) of the male offenders were deceased. Two additional offenders died during the process, after psychiatric examinations but before sentencing, leaving 64 mothers and 26 fathers for judicial processing and thus the material of the current study. They included 63 biological mothers, 20 biological fathers, one foster mother, and six stepfathers; all were in an actual parental relationship with the victim(s). Even though neonaticide is a female offense (Putkonen et al. 2016), it was included in the present material because neonaticide forms a crucial part of female perpetrated filicide without which a gender comparison would be limited. There were 21 neonaticides in the material. Other background variables are portrayed in Table 1 below.

Outcome measures

All variables of the current study were selected based on previous literature. The outcome variables were the legal outcomes—the rulings, criminal responsibility, and hospital treatment orders—of the filicide. To study the outcomes, the following variables were used: victim's age, offender's gender, offender's previously recorded criminal offending, intoxication (alcohol or drugs) during the offense, and post-offense diagnoses of substance abuse/dependence, personality, and psychotic disorders. Infanticides were also studied as a

separate group. Life imprisonment was coded as 21 years in Austria and 15 years in Finland. In Austria, life imprisonment means a sentence of at least 20 years (Doralt 2017). In Finland, an adult convicted for life can be pardoned after serving 12 years; during the study, the length of life imprisonment was between 12 and 17 years (Paanila 2004). The cases of life imprisonment were separately analyzed as a putative subgroup.

Statistical analyses

Gender difference for the mean time of conviction was assessed by independent-samples t test. Chi-square analysis and Fisher's exact test were used to compare basic differences between the genders. The Bonferroni correction was not used to control the type I errors due to the multiple comparisons, as it has been criticized for substantially increasing the risk of type II errors (Moran 2003; Nakagawa 2004; Perneger 1998). Fisher's exact test with small expected frequencies has not been found to increase type I errors (Howell 2007). Effect sizes were calculated using Cohen's d (Meyer et al. 2003) and were interpreted according to the guidelines provided by Cohen (1998). Further analyses were performed with logistic regression to analyze the relationships between gender and imprisonment, murder conviction, and hospital treatment order, entering the variables as dichotomously coded. The outcome was further controlled for victims older than 1 year,

Table 1 Filicide in Austria and Finland 1995–2005: background information

	Mothers ($n = 64$)		Fathers ($n = 26$)		p	(d^a)
	n	(%)	n	(%)		
Mean age (SD)	31	(9.89)	34	(8.09)	ns	
Victims						
Girls	30	(43)	19	(49)	ns	
Boys	40	(57)	20	(51)	ns	
Median age (IQR ^b)	1.0	(5.7)	4.0	(5.8)	ns	
Infant ^c	35	(49)	6	(15)	0.006	(0.06)
Single victim	59	(92)	18	(69)	0.009	(−0.62)
Prior criminal offending	10	(16)	12	(46)	0.003	(−0.68)
Intoxicated during offense	8	(13)	11	(42)	0.003	(0.70)
Post-offense diagnoses						
Substance abuse/dependence	1	(2)	9	(35)	— ^d	
Psychotic disorder	19	(30)	2	(8)	— ^d	
Personality disorder ^e	16	(25)	13	(50)	0.021	(−0.20)

All viable analyses Fisher's exact test, $df = 1$, one-sided

^a Cohen's d

^b Interquartile range (75–25th percentile) Victims' ages not normally distributed, hence median and IQR

^c Younger than 1 year

^d Not calculated because of too few cases

^e Personality disorder, no psychosis

previous criminality, and intoxication during the offense. Findings were considered significant when $p < 0.05$.

We received ethical permits from the following authorities and institutions: Austrian Ethics Commission, The Department of Justice and Medical University of Vienna, Finnish Ministry of Social Affairs and Health, Ministry of the Interior, The Office of the Data Protection Ombudsman, Ethics Committee for Paediatrics, and Adolescent Medicine and Psychiatry of Helsinki University Central Hospital.

Results

Of the 64 mothers and 26 fathers alive for legal processing, 25 (39%) mothers and 21 (81%) fathers were imprisoned. All legal outcomes are shown in Table 2 below.

Of those who were imprisoned, the fathers were convicted for significantly longer sentences (see Table 3).

Imprisonment, murder conviction, and hospital detention of mentally ill offenders were further analyzed with logistic regression. See Table 4 for results. It was more common for men to get imprisoned even when intoxication during the offense, previous criminality, and the age of the child were controlled for.

Within the filicide offenders, none of the 16 mothers or 13 fathers who met the criteria for personality disorder received a hospital detention order but 12 (75%) of the mothers and all 13 fathers were imprisoned. None of the 19 mothers and two fathers diagnosed with a psychotic disorder were imprisoned: 15 (79%) of the mothers and one (50%) father were committed to a hospital; the legal process was halted for three (16%) mothers and a conditional imprisonment sentence was given for one (5%) mother and one (50%) father.

Of the 35 mothers and six fathers who committed infanticide, 12 (34%) mothers and four (67%) fathers were imprisoned; the mothers' mean length of conviction was 6.4 years (1 year to life sentence, SD 6.0) and the fathers' 9.5 years (8–12 years, SD 1.7). The difference was not significant. The other legal outcomes of the infanticides are presented in Table 5. Two (33%) of the male infanticide offenders had a substance abuse/dependence diagnosis but none of the mothers. Six (17%) mothers and two (33%) fathers within this infanticide group had previous criminal offending.

All three mothers and ten fathers who received a sentence of life imprisonment were convicted for murder, all mothers and nine fathers as fully responsible and one father with diminished responsibility. None of them fulfilled the criteria of psychotic disorder. Two of the three mothers and six of the ten

Table 2 Filicide in Austria and Finland 1995–2005: legal outcomes of living offenders

	Mothers ($n = 64$)		Fathers ($n = 26$)		p (d^a)
	n	(%)	n	(%)	
Sentence of first level court					
Murder	18	(28)	16	(62)	0.003 (0.66)
Voluntary manslaughter	9	(14)	3	(12)	— ^b
Involuntary manslaughter	5	(8)	0	(0)	— ^b
Neonaticide	12	(19)	0	(0)	— ^b
Other	7	(11)	4	(15)	— ^b
Legal process halted	12	(19)	3	(12)	— ^b
Acquitted	1	(2)	0	(0)	— ^b
Unconditional discharge	2	(3)	0	(0)	— ^b
Fine	2	(3)	0	(0)	— ^b
Conditional discharge	7	(11)	1	(4)	— ^b
Hospital detention	15	(23)	1	(4)	— ^b
Imprisonment	25	(39)	21	(81)	0.001 (0.82)
Life sentence	3	(5)	10	(39)	— ^b
Criminal responsibility ^c					
Full responsibility	28	(55)	17	(74)	ns
Diminished responsibility	7	(14)	5	(22)	ns
No responsibility	16	(31)	1	(4)	0.008 (0.62)

All viable analyses Fisher's exact test, $df = 1$, one-sided

^a Cohen's d

^b Not calculated because of too few cases

^c Percentages of those with full legal process (51 mothers, 23 fathers)

Table 3 Imprisonment time

	Mothers (<i>n</i> = 25)		Fathers (<i>n</i> = 21)		<i>p</i> (<i>d</i> ^a)
	Years	(SD)	Years	(SD)	
Imprisonment time					
All offenders	7.9	(5.3)	14.4	(4.9)	< 0.001 (− 1.27)
Life sentence excluded	6.7	(4.1)	11.0	(3.6)	< 0.005 (− 1.11)
Infanticide excluded	9.3	(4.3)	15.5	(4.7)	< 0.001 (1.38)

All viable analyses Fisher's exact test, *df* = 1, one-sided

^a Cohen's *d*

fathers were personality disordered; three of these fathers also had a substance abuse/dependency diagnosis, none of the mothers. One (33%) mother and five (50%) fathers were intoxicated during the offense. Two (67%) of these mothers and five (50%) of the fathers had a history of criminal offending.

Discussion

In this binational register-based study of all filicides in Austria and Finland, gender differences in the legal outcomes were observed, but they were not as all-embracing as perhaps was to be expected. Criminal irresponsibility and hospital detention were more common for mothers and their crimes were ruled murder less often than those of fathers. These results are

in line with previous studies (Brookman and Nolan 2006; Flynn et al. 2007; Yarwood 2004; Yourstone et al. 2008). In fact, our present results from 1995 to 2005 were quite similar with a Finnish study on filicides from 1970 to 1994 with victims 15 or younger, with a similar gender difference of women receiving shorter sentences with lesser criminal responsibility (Kauppi et al. 2010).

According to the paternalism/chivalry hypothesis, women may be convicted more leniently or more harshly than men depending on their conformity to traditional gender roles (Franklin and Fearn 2008; Gurevich 2008; Little and Tyson 2017; Wiest and Duffy 2013). Also, Franklin and Fearn (2008) found women to receive more lenient sanctions.

Table 4 Filicide in Austria and Finland 1995–2005: odds ratio for imprisonment, murder conviction, and hospital detention order (95% confidence interval)

	Crude		Adjusted	
	OR	(95% CI)	OR	(95% CI)
Imprisonment				
Male gender	6.6	(2.2–19.6)	3.6	(1.1–12.1)
Victim older than 1 year	2.5	(1.1–5.8)	1.9	(0.7–4.9)
Previous criminality	3.4	(1.2–9.7)	2.0	(0.6–6.4)
Intoxicated during offense	4.8	(1.5–16.0)	3.1	(0.8–11.7)
Murder conviction				
Male Gender	4.1	(1.6–10.7)	2.7	(0.8–8.8)
Victim older than 1 year	10.4	(3.5–31.2)	8.8	(2.9–27.3)
Previous criminality	1.5	(0.6–4.1)	0.8	(0.2–2.9)
Intoxicated during offense	1.7	(0.6–4.6)	1.2	(0.3–4.5)
Hospital detention order				
Female gender	7.7	(0.96–61.3)	14.1	(1.7–118.2)
Victim younger than 1 year	0.2	(0.06–0.8)	0.1	(0.03–0.5)

“Crude” refers to each factor one-by-one analyzed for the relationship with imprisonment. “Adjusted” refers to all factors combined in a forced entry logistic regression model with imprisonment, murder conviction, and hospital detention as the dependent variables

OR odds ratio, CI confidence interval

Table 5 Infanticides in Austria and Finland 1995–2005: legal outcomes of living offenders

	Mothers (<i>n</i> = 35)		Fathers (<i>n</i> = 6)	
	<i>n</i>	(%)	<i>n</i>	(%)
Sentence of first level court				
Murder	4	(11)	1	(17)
Voluntary manslaughter	2	(6)	1	(17)
Involuntary manslaughter	5	(14)	0	(0)
Neonaticide	12	(34)	0	(0)
Other	3	(9)	3	(50)
Legal process halted	8	(23)	1	(17)
Acquitted	1	(3)	0	(0)
Unconditional discharge	2	(6)	0	(0)
Fine	2	(6)	0	(0)
Conditional discharge	7	(20)	1	(17)
Hospital detention	3	(9)	0	(0)
Imprisonment	12	(34)	4	(67)
Life imprisonment	1	(3)	0	(0)
Criminal responsibility ^a				
Full responsibility	17	(65)	4	(80)
Diminished responsibility	5	(19)	1	(20)
No responsibility	4	(15)	0	(0)

No statistical analyses were viable because of small data

^a Percentages of those with full legal process (26 mothers, 5 fathers)

Furthermore, a Swedish study looked into the history of homicide (Kaspersson 2002) and saw that as early as 60 years ago women offenders were considered mentally ill more often than the men. In our study, there was a relatively low proportion of female offenders of infanticide considered insane. In a more recent study, neonaticide offenders were found more personality disordered (33%) than psychotic (11%; Putkonen et al. 2007a). This, too, is in accordance with the present study; there were few gender differences within the infanticides, though the small data set limited analyses. Moreover, in the logistic regression analyses, the age of the victim proved an important variable in connection to the decision of conviction. There are two important factors explaining why women have younger victims and why they receive, in general, shorter sentences: Austria and Finland are modern societies that provide ample child care options for parents; however, during the first year, child care is provided principally by mothers. The motives for filicide, described in detail in the classifying filicide paper, differ between men and women depending on the stage at which they are at during certain processes, including foster care or separation of the parents. Women, in this study, committed neonaticides and infanticides, offenses that have a special judicator and limited sentence length, and were found to have motives like unwanted child or parental distress. Men committed more extended suicide because of separation after few years of family living.

When the groups of offenders convicted for life and those with a personality or psychotic disorder were inspected separately, the outcomes seemed to be relatively consistent. More men than women received a life sentence, but the offenders who were convicted for life had a criminal history more often than the rest of the offenders. Personality disorders were common and there were no significant gender differences within this group. Perhaps the group convicted for life is more like the common homicide offender than are other filicide offenders. Also, the groups with psychotic or personality disorders seemed quite consistently handled. Criminal history and substance abuse have been more present among female filicide offenders who received penal disposition than who received medical disposition (Laporte et al. 2003). Also among neonaticide offenders, psychotic offenders have been found to be different from non-psychotic ones (Putkonen et al. 2007b). Neonaticide offenders are rarely deemed not guilty by reason of insanity, because they are seldom psychotic (Putkonen et al. 2007a; Resnick 1970; Shelton et al. 2010). However, there seems to be no doubt that female filicide offenders are more often mentally ill than their male counterparts (Flynn et al. 2013) and that mothers who kill their older children are more often found to be psychotic or suffer from psychotic depression (Kauppi et al. 2010; Putkonen et al. 2010).

When female filicide offenders are considered separately and compared with previous results in the literature, the present study indicated slightly differing outcomes. In the present

study, approximately half of the mothers received a penal sentence and 23% were hospitalized. Previously, higher percentages of medical and lower ones of penal disposition have been reported (Cheung 1986; d'Orban 1979; Laporte et al. 2003). A Canadian study on maternal filicide was more in line with our results with 56% of penal and 44% medical disposition (Laporte et al. 2003). Yet, only 5% of the mothers in our study were convicted for life compared to the Canadian result of 28% life sentences (Laporte et al. 2003). It seems, despite possible differences in jurisdictions, that in Austria and Finland treatment is not easily forced on filicide offenders, and the legal process, ultimately the sentencing, is quite lenient and cautious. Still, even though there are differing legal traditions, the small data can produce imprecision into study results. Nevertheless, further study will be needed to bring to light the current international procedures of filicide.

The jurisprudence of child homicides is complex, and it has even been argued that current legal procedures are not the most appropriate for handling these cases (Levene and Bacon 2004). Regarding neonaticide specifically, it has been argued that everything during the legal process may vary from the pathological report onwards. Different aspects of the crime may be emphasized depending on the moral assumptions of the individual authorities involved; cases are often classified under different charges and rulings or are altogether lost in statistics because of suicide or inadequate proof (Putkonen et al. 2007a). In the present study, the legal process of 12 (19%) mothers and three (12%) fathers was halted, within the infanticide group slightly higher percentages were found, 23% mothers and 17% fathers. These figures show just how difficult the jurisprudence is. Since filicide is such a rare crime, there is no tradition or established pattern for investigating or trying; the judges may only have one or two such cases during their career. Thus, they have to rule ad hoc. This may produce inconsistencies in ruling, even discrepancies and inequality.

Strengths and limitations

This was a comprehensive, nationwide, and binational study in two European countries, all attributes of strong study material. Gender differences of the juridical outcomes of filicides have not been examined with such data before. Even though data from two countries enhance generalizability of results, since the results arose from European countries, their generalization to, e.g., the USA is problematic. Moreover, from a statistical perspective, the size of the data remains small even with binational material thus limiting statistical analyses. Conclusions, therefore, must be considered suggestive and in need of confirmation with other data. Complex jurisprudence, as described above, produces difficulty to access of cases. What is more, retrospective register-based studies have their apparent limitations.

Conclusions

A general gender difference did prevail in the legal outcomes of the offenders in the present study. Yet, the judges seemed to rule rather consistently within the subgroup of infanticide, which seems to be a unique finding. Neonaticide legislation, which is only pertinent to mothers, certainly affects the rulings. Of course, the small number of data limits conclusions, but our results might be indicative of greater consistency than previously thought. It seems to be important to be aware of the different characteristics of the subgroups of filicide when dealing with these difficult cases in the judicial system. Other characteristics such as psychosocial parameters may play a bigger role than gender per se.

Acknowledgements We thank Markku Eronen, Maria P. Almiron, and Jenny Yourstone for their contributions to the European Collaboration of the Understanding of Filicide (E.C.U.F.).

Funding The Austrian Project was funded by the Austrian National Bank (Jubiläumfonds AP 12200 ÖNB).

The Finnish research team did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Compliance with ethical standards

Ethical approval Ethical approval was granted in Austria by the Austrian Ethics Commission, the Department of Justice, and the Medical University of Vienna and in Finland by the Ministry of Social Affairs and Health, the Ministry of the Interior, the Office of the Data Protection Ombudsman, the Ethics Committee for Pediatrics, and the Adolescent Medicine and Psychiatry of Helsinki University Central Hospital.

Conflict of interest The authors have no financial interests associated with the funding sponsor for this research, and thus, the authors declare that no conflict of interest exists with respect to this work.

References

- Brookman F, Nolan J (2006) The dark figure of infanticide in England and Wales: complexities of diagnosis. *J Interpers Violence* 21:869–889. <https://doi.org/10.1177/0886260506288935>
- Charatan F (2002) Mentally ill mother escapes death penalty but faces life imprisonment. *BMJ* 324:694
- Cheung PT (1986) Maternal filicide in Hong Kong, 1971–85. *Med Sci Law* 26:185–192
- Cohen J (1998) *Statistical power analysis for the behavioral sciences*, 2nd edn. Lawrence Erlbaum Associates, Hillsdale, New Jersey
- Crew BK (1991) Sex differences in criminal sentencing: chivalry or patriarchy? *Justice Q* 8:59–83
- Daly K, Bordt RL (1995) Sex effects and sentencing: an analysis of the statistical literature. *Justice Q* 12:141–175. <https://doi.org/10.1080/07418829500092601>
- Dixon S, Krienert JL, Walsh J (2014) Filicide: a gendered profile of offender, victim, and event characteristics in a national sample of reported incidents, 1995–2009. *J Crime Justice* 37:339–355
- Doerner JK (2009) Explaining the gender gap in sentencing outcomes: an investigation of differential treatment in U.S. federal courts. Graduate College of Bowling Green State University
- Doralt W (ed) (2017) *Kodex Strafrecht 2017/18* [Criminal code of Austria- criminal law]. 47th edn. LexisNexis, Vienna
- d'Orban PT (1979) Women who kill their children. *Br J Psychiatry* 134: 560–571
- Eronen M, Seppänen A, Kotilainen I (2012) Forensic psychiatry in Finland. *Nordic Psychiatrist* 1:20–21
- Flynn SM, Shaw JJ, Abel KM (2007) Homicide of infants: a cross-sectional study. *J Clin Psychiatry* 68:1501–1509
- Flynn SM, Shaw JJ, Abel KM (2013) Filicide: mental illness in those who kill their children. *PLoS One* 8:e58981
- Franklin CA, Fearn NE (2008) Gender, race, and formal court decision-making outcomes: chivalry/paternalism, conflict theory or gender conflict? *J Crim Just* 36:279–290. <https://doi.org/10.1016/j.crimjus.2008.04.009>
- Gurevich L (2008) Patriarchy? Paternalism? Motherhood discourses in trials of crimes against children. *Sociol Perspect* 51:515–539. <https://doi.org/10.1525/sop.2008.51.3.515>
- Howell DC (2007) *Statistical methods for psychology*. Thomson Wadsworth, Belmont
- Kaspersson M (2002) Homicide and infanticide in Stockholm 1920–1939. *Journal of Scandinavian Studies in Criminology and Crime Prevention* 3:135–153. <https://doi.org/10.1080/14043850310010802>
- Kauppi A, Kumpulainen K, Karkola K, Vanamo T, Merikanto J (2010) Maternal and paternal filicides: a retrospective review of filicides in Finland. *J Am Acad Psychiatry Law* 38:229–238
- Laporte L, Poulin B, Marleau J, Roy R, Webanck T (2003) Filicidal women: jail or psychiatric ward? *Can J Psychiatr* 48:94–98
- Levene S, Bacon CJ (2004) Sudden unexpected death and covert homicide in infancy. *Arch Dis Child* 89:443–447
- Little J, Tyson D (2017) Filicide in Australian media and culture. *Interactive Factory*. <https://doi.org/10.1093/acrefore/9780190264079.013.182>
- Marks MN, Kumar R (1993) Infanticide in England and Wales. *Med Sci Law* 33:329–339
- Marks MN, Kumar R (1996) Infanticide in Scotland. *Med Sci Law* 36: 299–305
- Meyer GJ, McGrath RE, Rosenthal R (2003) Basic effect size guide with SPSS and SAS Syntax. <http://www.tandf.co.uk/journals/authors/hjpa/resources/basiceffectsizeguide.rtf>. Accessed 20 October 2010
- Moran MD (2003) Arguments for rejecting the sequential Bonferroni in ecological studies. *Oikos* 102:403–405
- Nakagawa S (2004) A farewell to Bonferroni: the problems of low statistical power and publication bias. *Behav Ecol* 15:1044–1045. <https://doi.org/10.1093/beheco/arl107>
- Oberman M (2003) Mothers who kill: cross-cultural patterns in and perspectives on contemporary maternal filicide. *Int J Law Psychiatry* 26:493–514. [https://doi.org/10.1016/S0160-2527\(03\)00083-9](https://doi.org/10.1016/S0160-2527(03)00083-9)
- Orthwein J, Packman W, Jackson R, Bongar B (2010) Filicide: gender bias in California defense attorneys' perception of motive and defense strategies. *Psychiatry Psychol Law* 17:523–537
- Paanila J (2004) *Vaarallisten rikoksenuusijoiden uusimisriskiin vaikuttavat tekijät Suomessa 1971–1995*. University of Kuopio
- Pemeger TV (1998) What's wrong with Bonferroni adjustments. *BMJ* 316:1236–1238
- Putkonen H, Collander J, Weizmann-Henelius G, Eronen M (2007a) Legal outcomes of all suspected neonaticides in Finland 1980–2000. *Int J Law Psychiatry* 30:248–254. <https://doi.org/10.1016/j.ijlp.2007.03.008>
- Putkonen H, Weizmann-Henelius G, Collander J, Santtila P, Eronen M (2007b) Neonaticides may be more preventable and heterogeneous than previously thought—neonaticides in Finland 1980–2000. *Arch Womens Ment Health* 10:15–23. <https://doi.org/10.1007/s00737-006-0161-9>

- Putkonen H, Amon S, Almiron MP, Yourstone Cederwall J, Eronen M, Klier C, Kjelsberg E, Weizmann-Henelius G (2009) Filicide in Austria and Finland—a register-based study on all filicide cases in Austria and Finland 1995–2005. *BMC Psychiatry* 9:74. <https://doi.org/10.1186/1471-244X-9-74>
- Putkonen H, Amon S, Eronen M, Klier CM, Almiron MP, Yourstone Cederwall J, Weizmann-Henelius G (2010) Child murder and gender differences—a nationwide register-based study of filicide offenders in two European countries. *Journal of Forensic Psychiatry and Psychology* 21:637–648
- Putkonen H, Amon S, Almiron MP, Yourstone-Cederwall J, Eronen M, Klier CM, Weizmann-Henelius G (2011) Gender differences in filicide offense characteristics—a comprehensive register-based study of child murder in two European countries. *Child Abuse Negl* 35:319–328
- Putkonen H, Amon S, Weizmann-Henelius G, Pankakoski M, Eronen M, Almiron MP, Klier CM (2016) Classifying filicide. *International Journal of Forensic Mental Health* 15:1–13
- Resnick PJ (1970) Murder of the newborn: a psychiatric review of neonaticide. *Am J Psychiatry* 126:1414–1420
- Rodriguez SF, Curry TR, Lee G (2006) Gender differences in criminal sentencing: do effects vary across violent, property, and drug offenses? *Soc Sci Q* 87:318–339
- Sentencing Advisory Council (2010) Gender differences in sentencing report released. <https://www.sentencingcouncil.vic.gov.au/news-media/media-releases/gender-differences-sentencing-report-released>. Accessed November 6 2017
- Shelton JL, Muirhead Y, Canning KE (2010) Ambivalence toward mothers who kill: an examination of 45 U.S. cases of maternal neonaticide. *Behav Sci Law* 28:812–831. <https://doi.org/10.1002/bsl.937>
- Sidebotham P, Retzer A (2018) Maternal filicide in a cohort of English serious case reviews. *Archives of Women's Mental Health*. <https://doi.org/10.1007/s00737-018-0820-7> [Epub ahead of print]
- Spinelli MG (2004) Maternal infanticide associated with mental illness: prevention and the promise of saved lives. *Am J Psychiatry* 161:1548–1557. <https://doi.org/10.1176/appi.ajp.161.9.1548>
- Spohn C (1999) Gender and sentencing of drug offenders: is chivalry dead? *Criminal Justice Policy Review* 9:365–399. <https://doi.org/10.1177/088740349900900305>
- Statistics Finland (2005) Crime statistics, Rikokset ja niiden selvittäminen 1995–2004 http://www.stat.fi/tup/tilastotietokannat/index_en.html. Accessed Nov 6, 2007
- Steffensmeier D, Kramer J, Streifel C (1993) Gender and imprisonment decisions. *Criminology* 31:411–446. <https://doi.org/10.1111/j.1745-9125.1993tb01136.x>
- Steffensmeier D, Ulmer J, Kramer J (1998) The interaction of race, gender, and age in criminal sentencing: the punishment cost of being young, black, and male. *Criminology* 36:763–198. <https://doi.org/10.1111/j.1745-9125.1998.tb01265.x>
- Wiest JB, Duffy M (2013) The impact of gender roles on verdicts and sentences in cases of filicide. *A Critical Journal of Crime, Law and Society* 26:347–365
- Wilczynski A (1997) Child homicide. Greenwich Medical Media, (Chapter 5).
- World Health Organization (2005) Core health indicators from WHO sources. <http://www.who.int/whosis/en>. Accessed August 28, 2008
- Yarwood DJ (2004) Child homicide. Review of statistics and studies. Dewar Research. <http://www.dewar4research.org/docs/chom.pdf>
- Yourstone J, Lindholm T, Grann M, Svenson O (2008) Evidence of gender bias in legal insanity evaluations: a case vignette study of clinicians, judges, and students. *Nord J Psychiatry* 62:273–278. <https://doi.org/10.1080/08039480801963135>