R E G U L A R A R T I C L E

Mental Illness in Homicide-Suicide: A Review

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Homicide followed by suicide (H-S) is a lethal event in which an individual kills another individual and subsequently dies by suicide. This article presents a review of research carried out in Asia, Australia, Canada, Europe, and the United States of America over the past 60 years on the prevalence of mental illness among the perpetrators of H-S. Analysis of the available data indicated a great disparity in the results of the different studies. Overall, depression was the most frequent disorder reported (about 39% of the cases in the 20 studies that assessed depressive disorders), followed by substance abuse (about 20% in 10 studies) and psychosis (about 17% in 11 studies). This review, therefore, indicated that mental illness plays an important role in H-S. The prevention of these events depends on the identification and treatment of psychiatric disorder in potential perpetrators.

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Homicide followed by suicide (H-S) refers to an incident in which an individual kills another person and subsequently takes his or her own life.[1] Although H-S events are rare when compared with other violent deaths,[2] this form of lethal violence produces stronger emotional feelings in the public when compared with a homicide or a suicide taken alone.[3–5] The emotional reaction is even stronger in cases of mass murder[6] or when children are involved.

Studies on H-S are scarce, and most were performed in the United States. The most extensive studies have focused on Australia,[7] England and Wales,[8] Fiji,[3] Hong Kong,[9,10] Italy,[11] the Netherlands,[12] and the United States.[5] There have also been studies of smaller regions: London[13] and other regions of the United Kingdom[14]; Paris[15]; regions of Finland[16]; Durban, South Africa[17]; and, in the United States, Chicago,[18,19] North Carolina,[20] and Oklahoma.[21]

Most of these studies are descriptive, and many focus on regions of a country or on cities. The samples often cover a limited period. A few studies include the whole nation, but not all have enough information to provide statistically reliable data. Evidence suggests that the percentage of H-S cases relative to the total number of homicides varies greatly across nations, ranging from 3 to 60 percent.[22] Such a wide range of variation raises important questions regarding cultural and structural factors underlying homicide-suicide patterns (e.g., Refs. 3, 8, 15) and indicates the importance of carrying out typological studies of H-S in different countries and cultures.

Briefly, the conclusions of these studies indicate that H-S usually occurs between family members (or among people who know each other well). The murderers are usually males, and the victims are usually females. The victims are usually younger than the murderers. When compared with other forms of homicide, the percentages of adult female and child victims are higher.[8] It has also been argued that homicide-suicides are different from both homicides and suicides,[23] occupying a distinct epidemiological

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domain, which nonetheless has similarities with both homicide and suicide.[1]

Some research has focused on the psychological variables that may motivate the murderer, and several models of H-S pathways have been proposed. Proposed classifications of H-S have been based on the relationship between the murderer and the victim(s), the apparent motivation for the crime,[1,24] psychiatric variables,[25] and investigative profiles developed by the FBI.[26] It is typically believed that a considerable proportion of persons who kill themselves after killing another person are psychiatrically disturbed,[15,27] even if cultural factors influence the definition of mental illness and explain possible variations in the findings.

Male perpetrators of H-S are typically depressed, but not psychotic,[27] although they may experience delusional jealousy.[1] Estimated rates of mental illness, primarily depression, range from 20 percent[28,29] to 75 percent.[15,27] Coid,[30] while finding considerable consistency in H-S rates across countries, noted that there was nonetheless twice the variation as that seen in the rates of psychiatric disorder in ordinary homicides, and he speculated that this could be because H-S is a hybrid of mentally normal and abnormal homicides. A major problem is that data about mental illness in H-S are usually retrieved unsystematically because of problems in obtaining anamnestic information.

The purpose of the present study was to collect data about the prevalence of mental illness in perpetrators of H-S from published studies. The goal was to give an initial description of the prevalence of mental illness in H-S. The results have implications for the health care and criminal justice systems and suggest possible strategies for prevention. A critique of the studies in the field, gaps in knowledge, and recommendations for policy and future research are presented in the Discussion section.

Materials and Methods

In August 2011, we performed a PubMed, MedLine, and Psych-info search (only English language) using the terms homicide-suicide, murder-suicide, and homicide followed by suicide in the title; filicide-suicide in the title or in the abstract and mental illness in the text; and mass murdered or mass murderer in the title and suicide in the text. The combined search strategies produced, in order, 137, 13, and 5 publications, respectively. Among these, 126, 12, and 5, respectively, were original works published in periodicals. The analysis of these articles indicated that 76, 12, and 4 articles, respectively, were relevant to our review because they had data on mental illness. Studies that were not clear about the percentages of perpetrators who were psychiatric patients or the diagnostic criteria were eliminated. We decided to include studies that used newspaper surveillance as a research methodology, because our purpose was to provide an initial analysis of mental illness in H-S using all possible sources. The final sample included 30 studies.

Results

Table 1 summarizes, in chronological order, all of the studies that referred to mental illness in samples of H-S. The first studies appeared in Europe. Virkunnen[31] found a prevalence of 15 percent for mental illness in 126 perpetrators of H-S occurring in Finland during a 16-year period (1955–1970). In the same population, Saleva *et al.*[2] examined 10 cases of H-S during one year (April 1987 to March 1988) and found that 40 percent of the offenders had major depression and another 30 percent had a suspected mental disorder. In addition, 20 percent of the perpetrators had alcohol abuse/dependence without having a psychotic disorder. In Iceland, Gudjonsson and Petursson[32] examined four cases that took place between 1900 and 1979 and found psychosis in 75 percent of perpetrators.

In England, two important studies were performed in Yorkshire and the Humber region. In the first, Milroy[14] found that 21 percent of the 52 perpetrators over an 18-year period (1975–1992) had mental illness, while Gregory and Milroy[45] reported a rate of 7 percent in 30 perpetrators from subsequent years (1993–2007). In France, Lecomte and Fornes[15] analyzed cases in Paris between 1991 and 1996 and found that 84 percent of the 56 perpetrators had mental illness, with a higher prevalence of depression than psychosis. In Switzerland, Shiferaw *et al.*[44] reported that 47 percent of the 23 perpetrators in Geneva between 1956 and 2005 had mental illness. Finally, Dogan *et al.*[48] found that, in 10 cases from Konya, Turkey, between 2000 and 2007, 40 percent of the perpetrators had a psychiatric disorder.

In the United States, the first study with data about mental illness in H-S was performed by Allen.[28] She studied the phenomenon in the city of Los Angeles for 10 years (1970–1979) and found that 18

Table 1 Mental Illness in Homicide-Suicide

Authors	Period	Nation/City	*n* cases	Notes	Data Sources	Kind of Mental Illness (MI)	% MI	% of MI in Treatment Before the H-S
Virkunnen[31]	1955–1970	Finland	126		Central Statistical Office, hospital records	Schizophrenia, paranoid psychosis, psychotic depression	10 2 3	
Gudjonsson and Petursson[32]	1900–1979	Iceland	4		Police records, interviews with police, medical reports	Psychotic illness	75	
Allen[28]	1970–1979	Los Angeles	104		Police files	Depression	18	
Rosenbaum[27]	1978–1987	Albuquerque, New Mexico	12	Couples only (70.6% of the total of 17 H-S cases)	Police files, interviews with family and friends, hospital records	Depressive disorders (major depression, bipolar, dysthymia)	75	33
Milroy[14]	1975–1992	Yorkshire and the Humber. UK	52		Coroners' records	Mental health issues	21	
Buteau *et al.*[33]	1988–1990	Quebec	39		Coronial services	Any mental disorder (substance abuse included), depression	67 46	31
Milroy *et al.*[29]	1985–1989	Victoria, Australia	39		Coronial services	Depression, erotomania, morbid jealousy (Othello syndrome)	18	
Cohen *et al.*[22]	1988–1994	Florida (west central and southeastern)	48	Twenty-seven cases of spousal H-S in old couples in west central Florida and 21 in Southeastern Florida	Complete medical examiner files and newspaper reports	Depression, other mental illnesses, alcohol/drug abuse	29 6 6	
Morton *et al.*[20]	1988–1992	North Carolina	99	Only cases involving female victims (>15 years old) and perpetrated by an intimate partner	Database of the Office of the Chief Medical Examiner (OCME)	Evidence of mental illness, substance abuse	15 18	
Lecomte and Fornes[15]	1991–1996	Paris and suburbs	56		Police and judicial files	Severe depression, evidence of psychosis, chronic alcoholism	75 9 29	
Malphurs and Cohen[34]	1997–1999	United States	673		Newspaper surveillance	History of psychiatric illness	3.8	
Bourget and Gagné[35]	1991-May 1998	Quebec	11	Only cases of maternal filicide-suicide	Coroners' files	Depression, psychosis	82 9	
Campanelli and Gilson[36]	1995–2000	New Hampshire	16		Office of Chief Medical Examiner	Depression, chronic alcoholism, schizophrenia	38 25 6	
Chan *et al.*[9]	1989–1998	Hong Kong	56		Coroner's Court	Depression, schizophrenia	19.6 7.1	
Hatters Friedman *et al.*[37]	1958–2002	Cleveland	30	Only filicide- suicides	Coroners' files	Depression, psychosis, previous suicide attempt	57 27 10	
Malphurs and Cohen[5]	1998–1999	Florida	20	Only spousal/consortial H-S involving perpetrators aged 55 years old and older	Medical examiner files and law enforcement investigative reports	Depressed mood, suicidal ideation, suicide threat	65 20 15	
Koziol-McLain *et al.*[38]	1994–2000	United States (11 cities)	67	Only selected femicide-suicide cases	Police and medical examiner records	Alcohol problem, substance abuse, suicide threats	52 50 51	
Bossarte *et al.*[4]	2003–2004	Several of the United States	209		National Violent Death Reporting System (NVDRS)	Current mental illness, history of mental illness, current depression, alcohol/drug abuse, previous suicide attempts	11 7.2 8.6 9.1 2.6	

Table 1 (Continued)

Authors	Period	Nation/City	*n* cases	Notes	Data Sources	Kind of Mental Illness (MI)	% MI	% of MI in Treatment Before the H-S
Moskowitz *et al.*[39]	1991–2000	New Zealand	33		Police files and coroners' reports	Mood disorder, schizophrenia or nonaffective psychosis anorexia nervosa	27.3 12.1 3	24.2
Léveillée *et al.*[40]	1986-March 1994	Quebec	38	Exclusively filicide-suicides	Office of the Chief Coroner of Quebec	Depressive disorders, substance abuse	32 5	
Saleva *et al.*[2]	April 1987-March 1988	Finland	10		Interviews with family, official policy, medical records	Major depression, possible depressive disorder, alcohol/drug abuse	40 30 20	
Gupta and Gambhir Singh[41]	2000–2004	Jamnagar region of Gujarat, India	8		Police inquest, interviews with family, hospital indoor case papers	Mental illness	12.5	
Barber *et al.*[42]*	2001–2002	United States	74		Coroner or medical examiner reports, police records	Use of antidepressants	15	
Logan *et al.*[43]	2003–2005	17 U.S. states	408		National Violent Death Reporting System (NVDRS)	Current depressed mood, current mental health problem, alcohol dependence, other substance abuse problem, history of suicide attempts, suspected intoxication, mental distress resulting in mercy killing	12.5 13.7 6.1 5.6 3.4 22.3 4.9	9.6 12 (anti-depressants)
Yip *et al.*[10]	1989–2005	Hong Kong	99		Death reports, investigation reports, autopsy reports, psychological reports	Any mental disorder	17.4	
Shiferaw *et al.*[44]	1956–2005	Geneva, Switzerland	23		Coroners' records	Depression, psychosis	30 17	
Gregory[45]	1993–2007	Yorkshire and the Humber, UK	30		Coroners' records	Mental health issues	7	
Haines *et al.*[46]	20 years	Tasmania	22		Coroners' records	Depression, psychotic symptoms, alcohol abuse, psychiatric disturbance, psychiatric hospitalization	9 9 32 14 25	
Bourget *et al.*[47]	1992–2007	Quebec	15	Only H-Ss perpetrated by individuals aged 65 or older	Coroners' files	Major depression, other psychiatric disorder, other psychosis	87 6 6	
Dogan *et al.*[48]	2000–2007	Konya, Turkey	10		The Konya Branch of the Forensic Medicine Council	Major depression, antisocial personality disorder, reactive depression in a pedophile	20 10 10	

* We have included this study considering the use of antidepressants as a measure of mental illness, despite the diagnostic category.

percent of the 104 perpetrators had a depressive syndrome. Rosenbaum,[27] in a study performed in the city of Albuquerque, New Mexico, reported that depression was present in 75 percent of the perpetrators of spousal H-S in the period 1978 to 1987. In 48 spousal H-Ss by elderly perpetrators in Florida from 1988 to 1994, Cohen *et al.*[22] found that 41 percent of the perpetrators had a mental disorder, most often depression. In the same region for the period 1998 to 1999, Malphurs and Cohen[5] found that 65 percent of 20 perpetrators had a depressed mood before the crime.

Studies of the United States as a whole often obtained divergent results. For example, Malphurs and Cohen[34] found a low prevalence of psychiatric illness (3.8%) in 673 cases collected through newspaper reports for the period 1997 to 1999. Koziol-McLaine *et al.*[38] found that 50 percent of 67 cases of femicide-suicide (men killing women and then taking their own lives) during the period 1994 to 2000 had a psychiatric disorder. Bossarte *et al.*[4] found a prevalence of 11 percent for current mental illness and 7.2 percent for a history of mental illness in 209 cases of H-S in the period 2003 through 2004. Barber *et al.*[42] found that 15 percent of 74 perpetrators of H-S in the period 2001 through 2002 had been using antidepressants. Logan *et al.*[43] found a prevalence of 13.7 percent for mental illness in 408 perpetrators for the period 2003 through 2005.

In a study in New Hampshire, Campanelli and Gilson[36] found 16 cases of H-S over six years (1995–2000) with a prevalence of mental illness of 69 percent. In Cleveland from 1958 through 2002, Hatters Friedman *et al.*[37] found that 84 percent of 30 perpetrators of filicide-homicide had a history of mental illness. In North Carolina from 1988 through 1992, Morton *et al.*[20] found the presence of a history of mental illness in 15 percent of the perpetrators, some of whom were also substance abusers.

In Quebec, Canada, from 1988 through 1990, Buteau *et al.*[33] reported the presence of mental disorders in 67 percent of 39 cases of H-S, of which 31 percent were receiving psychopharmacological treatment. Bourget and Gagné[35] reported a prevalence of 91 percent for mental disorders in 11 cases of maternal filicide-suicide in Quebec from 1991 through 1998. Léveillée *et al.*[40] studied 38 cases of filicide-suicide in Quebec from 1986 through 1994 and found that 37 percent of the perpetrators had psychiatric disorders, primarily depression and substance abuse. Bourget *et al.*[47] focused on 15 cases in older offenders in the period from 1992 through 2007 and found that 100 percent were mentally disturbed, with a high prevalence of depression.

In Australia, Milroy *et al.*[29] found that 18 percent of 39 cases in the state of Victoria for the period 1985 through 1989 had psychiatric illness. Haines *et al.*[46] found that 64% of 22 cases of H-S in Tasmania over a 20-year period had a psychiatric disorder. In New Zealand, Moskowitz *et al.*[39] reported that 42 percent of 33 perpetrators of H-S between 1991 and 2000 had mental illness.

Chan *et al.*[9] studied 56 cases of H-S in Hong Kong from 1989 through 1998 and found that 27 percent had mental illness, whereas Yip *et al.*[10] found a prevalence of 17 percent in 99 cases in the same city between 1989 and 2005. In the Jamnagar region of Gujarat (India) between 2000 and 2004, Gupta and Gambhir Singh[41] found that 12.5 percent of eight perpetrators were mentally ill.

Discussion

The 30 studies reviewed herein include 2,431 cases of H-S. Data collected are difficult to interpret for three reasons. The first concerns the definition of H-S. Whereas most murderers who kill themselves do so immediately after the homicide, there are some who commit suicide some time after the homicide. The definition of the time range between the homicide and the suicide is not uniform over the different studies. For example, Felthous and Hempel[25] considered a few days as the criterion; Marzuk *et al.*,[1] one week; and Allen,[28] three months. However, the time range was not specified in most of the studies. It is obvious that the accurate definition of a time range could help researchers understand better the characteristics of the crimes and the psychopathology of the perpetrators. Also socioeconomic information about perpetrators and victims is missing in many of the articles.

The second reason is the definition of mental illness and its assessment. In the studies reviewed, there was a widespread range in the percentage of mental illness (4%–100%) and a great variability in the types of H-S considered. The lowest percentage of mental illness came from the study by Malphurs and Cohen[34] in the United States which, although having the largest sample size, was based on press reports, which rarely investigate psychiatric factors. In five studies, there were no distinctions between different

diagnoses.[10,14,34,41,45] In other studies, the degree of overlap between disorders was unclear, and the studies differed in their definition of mental illness. However, depression was the most frequent psychiatric disorder reported (in about 39% of the offenders in the 20 studies that assessed depressive disorders), followed by substance abuse (about 20% of the offenders in 10 studies) and psychosis (about 17% of the offenders in 11 studies).

In the three studies of elderly subjects, mental illness was found in a greater percentage of the offenders (68%), with a high prevalence of depression (in 60% of the offenders). Excluding the newspaper study by Malphurs and Cohen,[34] the data from the others studies indicate that almost one-third of H-S perpetrators had mental disorders.

In the present review, we included studies in which newspaper surveillance was used, but this way of obtaining data, even if it permits the examination of a large number of cases, is inaccurate. Only studies that employed valid psychological and psychiatric evaluations are useful for understanding the prevalence of mental illness in H-S. Consequently, future research into the prevalence of psychiatric disorder in perpetrators of H-S should involve methodologically sound psychological autopsies with clearly defined criteria for the presence of psychiatric disorder.

The third reason is that the great variability among studies about the different types of H-S prevents a clear conclusion about the phenomenon of H-S. Some studies considered only filicide-suicides,[35,37,40] others only cases involving intimate partners,[5,20,22,27] and still others only homicide-suicides committed by old people (with a variable of old).[5,22,47] This indicates the need for systematic studies that assess in which subtypes of homicide-suicide mental illness is more common.

Despite all these problems, it is clear that data about prevalence of mental illness in H-S suggest that there is a need to increase awareness of and training in suicide risk assessment in all health service personnel, especially those dealing with vulnerable and high-risk groups in primary care. This training should focus particularly on how, where, and when to alert specialist psychiatric services. Psychiatric assessment could have an important role in the prevention of these crimes. For example, considering that most of H-Ss are carried out with firearms, prevention should involve protocols to include psychiatric factors in decisions to permit possession of firearms. The application of this protocol should be provided through a change in the regulations on the possession and purchase of weapons, even in countries in which the rules are currently liberal.

To better understand this phenomenon and to improve prevention, it is important to have socioeconomic data, psychiatric evaluations, information about cultural and religious factors, information about the possession of firearms, and data on previous episodes of violence in the perpetrators. It is imperative that a nationwide system be established in countries for collecting and collating data on murder-suicide, along with a special register of such cases.

References

1. Marzuk PM, Tardiff K, Hirsch CS: The epidemiology of murder–suicide. JAMA 267:3179–83, 1992
2. Saleva O, Putkonen H, Kiviruusu O, *et al*: Homicide-suicide: an event hard to prevent and separate from homicide or suicide. Forensic Sci Int 166:204–8, 2007
3. Adinkrah M: Homicide–suicide in Fiji: offense patterns, situational factors, and sociocultural contexts. Suicide Life Threat Behav 33:65–73, 2003
4. Bossarte RM, Simon TR, Barker L: Characteristics of homicide followed by suicide incidents in multiple states, 2003–2004. Injury Prevent 12(Suppl ii):33–8, 2006
5. Malphurs JE, Cohen D: A statewide case-control study of spousal homicide-suicide in older persons. Am J Geriatr Psychiatry 13:211–17, 2005
6. Spungen D: Homicide: The Hidden Victims: A Guide for Professionals. Thousand Oaks, CA: Sage Publications, 1998
7. Carcach C, Grabosky PN: Murder–suicide in Australia, in Trends and Issues in Crime and Criminal Justice Series. Canberra: Australian Institute of Criminology, 1998, p 82
8. Barraclough BM, Harris CE: Suicide preceded by murder: the epidemiology of homicide–suicide in England and Wales 1988–92. Psychol Med 32:577–84, 2002
9. Chan CY, Beh SL, Broadhurst RG: Homicide-suicide in Hong Kong, 1989–1998. Forensic Sci Intl 140:261–7, 2004
10. Yip PS, Wong PW, Cheung YT, *et al*: An empirical study of characteristics and types of homicide-suicides in Hong Kong, 1989–2005. J Affect Disord 112:184–92, 2009
11. Roma P, Spacca A, Pompili M, *et al*: The epidemiology of homicide-suicide in Italy: a newspaper study from 1985 to 2008. Forensic Sci Intl, in press
12. Liem M, Postulart M, Nieuwbeerta P: Homicide–suicide in the Netherlands: an epidemiology. Homicide Stud 1:99–123, 2009
13. West DJ: Murder Followed by Suicide. London: Heinemann Educational Books, 1965
14. Milroy CM: Homicide followed by suicide (dyadic death) in Yorkshire and Humberside. Med Sci Law 33:167–71, 1993
15. Lecomte D, Fornes P: Homicide followed by suicide: Paris and its suburbs, 1991–1996. J Forensic Sci 43:760–4, 1998
16. Kivivuori J, Lehti M: Homicide followed by suicide in Finland: trend and social locus. J Scand Stud Criminol Crime Prevent 4:223–36, 2003
17. Roberts K, Wassenaar D, Canetto SS, *et al*: Homicide–suicide in Durban, South Africa. J Interpers Violence 25:877–99, 2010
18. Cavan R: Suicide. Chicago: University of Chicago Press, 1928
19. Stack S: Homicide followed by suicide: an analysis of Chicago data. Criminology 35:435–54, 1997

20. Morton E, Runyan CW, Moracco KE, *et al*: Partner homicide-suicide involving female homicide victims: a population-based study in North Carolina, 1988–1992. Violence Victims 13:91–106, 1998
21. Comstock RD, Mallonee S, Kruger E, *et al*: Epidemiology of homicide–suicide events: Oklahoma, 1994–2001. Am J Forensic Med Pathol 26:229–35, 2005
22. Cohen D, Llorente M, Eisdorfer C: Homicide-suicide in older persons. Am J Psychiatry 155:390–6, 1998
23. Wolfgang M: An analysis of homicide–suicide. J Clin Exp Psychopathol Q Rev Psychiatry Neurol 19:208–21, 1958
24. Hanzlick R, Koponen M: Murder-suicide in Fulton County, Georgia: comparison with a recent report and proposed typology. Am J Forensic Med Pathol 15:168–75, 1994
25. Felthous AR, Hempel AG: Combined homicide–suicides: a review. J Forensic Sci 40:846–57, 1995
26. Douglas J, Burgess A, Ressler R: Crime Classification Manual: A Standard System of Investigating and Classifying Violent Crimes (ed 2). San Francisco: Jossey-Bass, 2006
27. Rosenbaum M: The role of depression in couples involved in murder-suicide and homicide. Am J Psychiatry 147:1036–9, 1990
28. Allen N: Homicide followed by suicide: Los Angeles 1970–1979. Suicide Life Threat Behav 13:155–65, 1983
29. Milroy CM, Dratsas M, Ranson DL: Homicide-suicide in Victoria, Australia. Am J Forensic Med Pathol 18:369–73, 1997
30. Coid J: The epidemiology of abnormal homicide and murder followed by suicide. Psychol Med 13:855–60, 1983
31. Virkunnen M: Suicide linked to homicide. Psychiatr Q 48:276–82, 1974
32. Gudjonsson G, Petursson H: Some criminological and psychiatric aspects of homicide in Iceland. Med Sci Law 22:91–8, 1982
33. Buteau J, Lesage AD, Kiely MC: Homicide followed by suicide: a Quebec case series, 1988–1990. Can J Psychiatry 38:552–6, 1993
34. Malphurs JE, Cohen D: A newspaper surveillance study of homicide-suicide in the United States. Am J Forensic Med Pathol 23:142–8, 2002
35. Bourget D, Gagné P: Maternal filicide in Québec. J Am Acad Psychiatry Law 30:345–51, 2002
36. Campanelli C, Gilson T: Murder-suicide in New Hampshire, 1995–2000. Am J Forensic Med Pathol 23:248–51, 2002
37. Hatters Friedman S, Hrouda DR, Holden CE, *et al*: Filicide-suicide: common factors in parents who kill their children and themselves. J Am Acad Psychiatry Law 33:496–504, 2005
38. Koziol-McLain J, Webster D, McFarlane J, *et al*: Risk factors for femicide-suicide in abusive relationships: results from a multisite case control study. Violence Victims 21:3–21, 2006
39. Moskowitz A, Simpson AIF, McKenna B, *et al*: The role of mental illness in homicide-suicide in New Zealand, 1991–2000. J Forensic Psychiatry Psychol 17:417–30, 2006
40. Léveillée S, Marleau JD, Dubé M: Filicide: a comparison by sex and presence or absence of self-destructive behavior. J Fam Violence 22:287–95, 2007
41. Gupta BD, Gambhir Singh O: A unique trend of murder-suicide in the Jamnagar region of Gujarat, India (a retrospective study of 5 years). J Forensic Legal Med 15:250–5, 2008
42. Barber CW, Azrael D, Hemenway D, *et al*: Suicides and suicide attempts following homicide: victim-suspect relationship, weapon type, and presence of antidepressants. Homicide Stud 12:285, 2008
43. Logan J, Hill HA, Black ML, *et al*: Characteristics of perpetrators in homicide-followed-by-suicide incidents: National Violent Death Reporting System–17 US States, 2003–2005. Am J Epidemiol 168:1056–64, 2008
44. Shiferaw K, Burkhardt S, Lardi C, *et al*: A half century retrospective study of homicide-suicide in Geneva-Switzerland: 1956–2005. J Forensic Legal Med 17:62–6, 2010
45. Gregory MJ, Milroy CM: Homicide and suicide in Yorkshire and the Humber: 1975–1992 and 1993–2007. Am J Forensic Med Pathol 31:58–63, 2010
46. Haines J, Williams CL, Lester D: Murder-suicide: a reaction to interpersonal crises. Forensic Sci Intl 201:93–6, 2010
47. Bourget D, Gagné P, Whitehurst L: Domestic homicide and homicide-suicide: the older offender. J Am Acad Psychiatry Law 38:305–11, 2010
48. Dogan KH, Demirci S, Gunaydin G, *et al*: Homicide-suicide in Konya, Turkey between 2000 and 2007. J Forensic Sci 55:110–15, 2010