Forensic Science International 207 (2011) 70–76

Contents lists available at ScienceDirect

Forensic Science International

journal homepage: www.elsevier.com/locate/forsciint

Homicide–suicide and other violent deaths: An international comparison

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ARTICLE INFO

Article history:
Received 27 May 2010
Received in revised form 6 September 2010
Accepted 7 September 2010
Available online 8 October 2010

Keywords:
Homicide
Suicide
Murder–suicide
Firearms
International aspects
Family violence

ABSTRACT

Homicides followed by the suicide of the perpetrator constitute a serious form of interpersonal violence. Until now no study has directly compared homicide–suicides to other violent deaths from multiple countries, allowing for a better understanding of the nature of these violent acts. Using country-specific data, this study describes and compares the incidence and patterns of homicide–suicide as well as the relationship between homicide–suicide, homicide, suicide and domestic homicide in the Netherlands, Switzerland and the United States. The results indicate that cross-nationally, homicide–suicides are more likely than other types of lethal violence to involve a female victim, multiple victims, take place in a residential setting and to be committed by a firearm. Although homicide–suicides display many similarities across the different countries, differences exist regarding age and the use of firearms in the offence. This study indicates that homicides followed by suicides differ from both homicides and suicides in similar ways internationally. Cross-national differences in the availability of firearms may explain the international variation of homicide–suicide rates and patterns.

1. Introduction

Homicide–suicide refers to an incidence of homicide followed by the suicide of the perpetrator. Homicide–suicide incidents make up a relatively small proportion of homicides overall. However, certain subtypes of homicide are frequently followed by suicide – notably men who kill an intimate partner with a firearm are followed by suicide in over half of all incidents [1–5].

In recent years, the rate of homicide–suicides showed considerable geographic variation. Homicide–suicide rates range from as low as 0.06 per 100,000 persons per year in England and Wales [6] to 0.38 per 100.000 in the Toyama region in Japan [7]. Examining thirteen US states, Bossarte et al. estimated the overall rate to be 0.21 per 100,000 [8]. In Australia and New Zealand, the homicide–suicide rate has ranged from 0.07 [9] to 0.11 [10]. Marzuk et al. (1992) placed the homicide–suicide mortality rate in the United States, based on 1000–1500 deaths per year, on par with diseases, such as tuberculosis (1467 deaths), viral hepatitis (1290 deaths), influenza (1943 deaths) and meningitis (1156 deaths).

1.1. Background

Previous studies on homicide–suicide have been limited in at least three aspects [11]. First, given the rarity of the act, previous studies have relied on small samples that were studied in a qualitative manner [12–15]. Second, earlier research has mainly focused on describing the epidemiology of these events in a particular region, ranging from city-level [16–19] to country-level [10,20,21,4] analyses. Third, given the relatively diverse nature of the phenomenon, previous studies have focused on particular subtypes of homicide–suicide, mostly those involving intimate partners [22–26] or children [27–30].

Until now no study has directly compared rates and characteristics across countries adequately and in a detailed manner. International comparisons are limited to meta-analyses and have been hampered by a lack of uniform inclusion criteria, the use of different homicide–suicide classification schemes and incongruity in time periods studied. Some rely on a time span of 24 h [1,10,17,24,31] or several days [23,32], between the homicide and the suicide of the perpetrator; others use a week as an inclusion criterion [33–36] and still others do not use a timeline at all [37–39].

To examine the characteristics of a large number of homicide–suicides and to conduct international comparisons, M.L. and P.N. sought the assistance of authors of recent studies of homicide and

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doi:10.1016/j.forsciint.2010.09.003

homicide–suicide from Switzerland and the United States, who had data about these types of lethal violence.

1.2. Objectives

The aims of the present study are to compare the rates and patterns of homicide–suicide in three countries: two European countries (the Netherlands and Switzerland) and the United States, by establishing a cross-nationally comparable dataset. Also, because our dataset includes a uniform classification scheme and a sizeable number of cases, we are able to compare several characteristics of homicide–suicide cases, victims and perpetrators across countries. In addition, we compare the incidence and characteristics of homicide–suicide with other violent death categories: suicide, homicide, and conduct a comparison between domestic homicide–suicide and domestic homicide.

1.3. Cross-national differences

The three countries in our study are similar in many aspects, but also differ substantially in others. All are highly developed, stable democracies and have fairly similar demographics. Data for the year 2008 [40] indicate quite comparable population structure with respect to age: between 18 and 20 per cent of the population under age 14, and approximately 68 per cent between the ages 15 and 64 in all three countries. Also, life expectancy at birth (Netherlands = 79 years; Switzerland = 80 years; United States = 75 years), literacy (99 per cent of the total population in all three countries) and unemployment rate (Netherlands = 5 per cent; Switzerland = 3 per cent; United States = 7 per cent) are fairly similar. Lifetime prevalence of mental disorder in the Netherlands is approximately 41 per cent, of which alcohol dependence accounts for 6 per cent and drug dependence for 2 per cent [41]. In Switzerland the lifetime prevalence of mental disorders is approximately 49 per cent [42], of which 18 per cent is alcohol and 8 per cent drug-related.[1] In the United States, lifetime prevalence of mental disorder is roughly 46 per cent, of which 5 per cent constitutes alcohol dependence and 3 per cent drug dependence.

One especially relevant aspect for this study in which these countries differ is the availability of firearms. In the Netherlands, firearm legislation is restricted and hence, firearm possession relatively low (around 5 per cent of all households) [43]. Switzerland, however, with its militia system engaging every male Swiss citizen to serve in the military, legally held army ordnance weapons are kept at home. This contributes to a high prevalence of households owning at least one firearm (approximately 28 per cent).[2] In the United States, many people keep firearms in the home for personal protection [45]. Overall, it is estimated that 33 per cent of all households in the United States possess a firearm [46].

It is expected that the differences in the availability of firearms and the accompanied lethal impact of violent behavior will be reflected in differences in rates of lethal violence between the three countries. Given the many similarities between the countries, however, we expect the nature of homicide–suicide in the three countries to be similar and to differ from other types of lethal violence in similar ways. Based on the existing literature, this translates specifically in the expectations that the majority of homicide–suicides will involve women who are killed by their (estranged) male partner.

2. Materials and methods

2.1. Data sources

Due to the various forms of lethal violence and due to the multi-centre nature of this study, various data sources were used. In all three countries, uniform definitions were applied to extract information on homicide–suicide, homicide and suicide for overlapping periods. We defined a homicide–suicide as an incident involving one or more homicides followed by the suicide of the suspected perpetrator within 24 h, a definition used in previous studies [1,10,17,23,32].

2.1.1. The Netherlands

In the Netherlands, homicide data (articles 287–291 Code of Dutch Criminal Law) were retrieved from the National Dutch Homicide Monitor 1992–2006 [47]. Not covered in these articles are physician-assisted deaths, assistance to suicide, and abortion, since in the Netherlands, these are considered crimes only in exceptional circumstances [48]. From the Dutch Homicide Monitor, all homicide–suicides were extracted and included in a new database entitled Homicide–Suicide 1992–2006 [49]. Additional information on individual homicide–suicide cases was collected from print media in order to supplement the data with background information that was not included in the database [50]. Suicide data were collected from the dataset Causes of Death Statistics from the Dutch Central Bureau of Statistics, Statistics Netherlands [51]. Data on suicide ranged from the period 1996 to 2006. Cases were classified as suicides based on the cause of death given by the medical examiner (ICD-10 codes X60–X84).

2.1.2. Switzerland

Homicide (articles 111–116 of the Swiss Criminal Code) as well as suicide (ICD-10 codes X60–X84) data from Switzerland were retrieved from the National Swiss Homicide and Suicide Database [52]. This database includes all homicides and a randomly selected 10 per cent of all suicides[3] that occurred in Switzerland. Homicide–suicide cases were imported into a new database. It should be noted that only homicide cases where an autopsy had been ordered could be considered. In obvious cases of homicide followed by suicide of the offender (e.g. the homicide–suicide takes place in a locked apartment), an autopsy is not always ordered. Therefore, the rates presented for Switzerland may suffer from some undercounts.[4] In order to adjust the time line to the data available in the Netherlands, cases that took place between 1992 and 2004 were included in the analysis. As the Swiss suicide sample consists of a random selection of 10 per cent of suicides in Switzerland, mean annual suicide rates were taken from the Causes of Death Statistics from the Swiss Federal Bureau of Statistics [53].

2.1.3. United States

Data from the US are from the National Violent Death Reporting System (NVDRS), an incident-based surveillance system of all incidents involving suicide, homicide, and combined homicide–suicide events, in addition to selected other death types, that occur within participating states [54,55]. For our study we used data on deaths for the years 2004 through 2006 reported by the thirteen US states that participated in NVDRS throughout that period (Alaska, Colorado, Georgia, Maryland, Massachusetts, New Jersey, North Carolina, Oklahoma, Oregon, Rhode Island, South Carolina, Virginia and Wisconsin). Data abstractors follow a detailed NVDRS coding manual to ensure consistency. To improve uniformity in coding, CDC staff review 10 per cent of the narratives and provide feedback to the reporting sites when coding is not supported by the narrative. Homicide, suicide and homicide–suicide incident rates (based on abstractor's assigned type of death) were calculated using the CDC's Web-based Injury Statistics Query and Reporting System's (WISQARS) NVDRS module [56]. Population estimates in WISQARS are based on the US Census Bureau. Data on decedent and incident characteristics are from the NVDRS Restricted Access Database which was released by the CDC in January 2009.

2.2. Variables

Homicide–suicides were classified according to Marzuk et al.'s widely used classification system based on the relationship between victim and offender. This includes intimate partners (current or former spouse, girlfriend or boyfriend),

[1] It should be noted that Swiss data has not been collected according to the WHO-CIDI format and is based on a rather small sample.

[2] Among the Swiss households with at least one firearm, 63 per cent own an ordnance weapon only, whereas private weapons are kept in 26 per cent among households owning firearms. Private and military firearms are being kept in the remaining 10 per cent of households [44] In 2007, the Swiss army has stopped distributing ammunition to soldiers and has started to withdraw ammunition already in possession of members of the military. Nevertheless, the military firearms remain in possession of soldiers, as long as they serve in the army, and often beyond.

[3] In a fist step, we created lists containing all cases of suicides known to official authorities. Suicides where an autopsy had been performed were collected in the legal medicine institutes, those not involving any autopsy were collected from police, court or other criminal justice authorities. In a second step, in order to ensure a randomized sampling, every tenth case was chosen from these lists. Considering this proceeding as well as the relatively high number of selected cases, it can be assumed that the sample is representative of all suicides in Switzerland.

[4] Checks with alternative sources revealed that undercounts may be in the order of 16 percent.