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The Death of Offenders in Switzerland

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ABSTRACT

Death of prisoners has been a topic of concern for many years. Most studies have been focused on suicide among prison inmates and among populations of comparable age and sex. Such comparisons have usually shown suicide rates to be considerably higher among prisoners, and the prevailing conclusion has been that prison conditions are the major cause of this difference. Recent research in England and Wales suggests, however, that suicide rates are also unusually high among offenders in the community. If other causes of unnatural death are included, the gap between prisoners and offenders not in custody narrows further. To date, relevant research has tended to be limited to England and a few other English-speaking countries; therefore the present study was conducted in order to determine how far the conclusions might hold more generally. The Swiss data presented here confirm that unnatural death is rather common among offenders outside prison. Despite some differences in frequency of suicide and other unnatural causes of death among prisoners in England and Switzerland (which may be due to differences in sentencing and other policies), the overall picture of mortality in prisons suggests many similarities between the two countries.

KEY WORDS

Drugs / Prisoners / Suicide / Switzerland / Violent Death.

Introduction

The death of offenders has received attention from researchers, policy makers and the public. Most of the attention has been centred on the suicide of prisoners. This is because suicide is the biggest killer of prisoners

in many countries. For example, in England and Wales (Sattar 2001) and Australia (Dalton 1999) suicide was found to account for around half of all deaths of prisoners. In Europe and Australia, the prison suicide rate is reported to be between three and 11 times the general community rate, and in the USA, the prison suicide rate is between five and 15 times the general community rate (Liebling 1992; Nock and Marzuk 2000). In contrast, other types of death and other types of offenders have received less attention.

Studies have identified risk factors that increase an offender's motivation to commit suicide during confinement. Some of these factors are related to prisoners' personal history, while others are related to the circumstances of imprisonment. For example, age, sex, unemployment prior to imprisonment, psychiatric illness, alcohol and drug abuse, a history of self-harming behaviour and social disadvantage/isolation have been found to be correlated with suicide while being in prison. In some studies, these factors are also related to suicide in the community and are not specifically related to imprisonment. These same risk factors are also heavily over-represented among the prison population in most countries.

Most prison suicide studies have used the general population for comparison purposes; however, these two populations differ in terms of socio-demographic and criminal history factors. Young males are over-represented in prison, whereas the different sexes and ages are more evenly distributed in the general population. There is also an over-representation in prison populations of the minority ethnic groups, the lower social classes, the less well educated, and those with physical and mental health problems (see Sattar 2001).

This has led some researchers to take account of some of the differences between the prison and general population. In the USA, Winfree (1985) took account of the gender, age and race differences between the prison and general populations, and found that the suicide rate for prisoners was five to 15 times the rate for the general population, and prisoners had lower death rates for natural causes and homicides.

Other researchers have examined the death of people more comparable with the prison population, such as those with mental illness.[1] In the UK, the Department of Health (2001) looked at people with mental illness, who before committing suicide had been in contact with mental health services. Around one-quarter of these suicides had been in contact with mental health services in the year before death. Hanging and overdoses were the most common methods used. Younger suicides more often had a

[1] There is an over-representation of the mentally ill among the prison population (Blaauw et al. 2000).

history of schizophrenia, personality disorders and drug and alcohol abuse. Most suicides with schizophrenia were unemployed and unmarried. Around one-quarter of suicides occurred within three months of discharge from in-patient care, with post-discharge suicides peaking in the first one to two weeks following discharge. In another UK study, King and Barraclough (1990) looked at violent death among people with mental illness in a single hospital catchment area, over an eight-year period. The risk of violent death (suicide, accidental and undetermined) for people who died within one year of their last psychiatric contact was 27 times higher than for residents in the same catchment area with no recent psychiatric contact. Risk was highest for 35 to 44-year-olds and lowest for 75 years and over.

It is also important to collect death data on other groups of offenders. A few studies have examined the death of offenders serving sentences in the community; these offenders are known to be reasonably similar to prisoners in terms of socio-demographic and criminal history characteristics (Sattar 2001). Pritchard et al. (1997) found probationers in Dorset, England, to have a mortality rate more than double that of the local male population and a suicide rate of at least nine times that of the local male population. Biles et al. (1999) found offenders serving correction orders in Victoria, Australia, to suffer from a higher risk of death than the general community and offenders in custody. In Australia and New Zealand, Flemming et al. (1992) found higher mortality rates for non-custodial offenders than custodial offenders. Further, parolees had a higher mortality rate than probationers and offenders serving community service orders. Joukamaa (1998) compared the mortality of recently-released male prisoners with an age-matched male general population. Ex-prisoners were statistically significantly more likely to suffer from natural deaths, accidental deaths and all deaths, than the control group. Escard et al. (2003) found a strong correlation between self-reported suicide attempts and violent offences in a sample of 21,314 Swiss males aged 20 in the general population, suggesting that suicide is also much more common among non-convicted offenders. In England and Wales, Sattar (2001) compared the nature and extent of death of prisoners with offenders serving community sentences and ex-prisoners being supervised in the community (community offenders) and the general population. Standardized mortality ratios for males, showed that community offenders were more vulnerable to death than prisoners: community offenders were at least 10 times and prisoners were at least eight times more at risk of suicide, and community offenders were around seven times and prisoners were less than two times at risk of accidental death, relative to the general population. Overall, the limited literature suggests that non-custodial offenders and certain vulnerable

groups of society may be at least as much at risk of violent death (in particular suicide) as prisoners.

Present research

The present study examined the nature and extent of death among prisoners and other adult offenders in Switzerland.[2] The original idea had been to replicate the methodology of Sattar (2001) in a different social, cultural and legal context, namely Switzerland; however, as will be explained later, this was not quite possible, although what was achieved was very worthwhile.

While the data for England and Wales are from the study by Sattar (2001), the Swiss data were collected on two groups of adult offenders:

1. all convicted prisoners who died in 1984–2000; and
2. a sample of finger-printed persons in the general population who had died in 1997–2001.

Switzerland has a typical continental legal system, mostly influenced by France and Germany (Trechsel and Killias, 2004). Its constitution is, however, more in line with the USA. Thus, prisons are run by cantonal correctional authorities, although criminal law has been unified since 1942. As a result, federal bodies (such as the *Office fédéral de la statistique*) have powers to collect data concerning prisoners convicted of offences against the Swiss Criminal Code only. No individual data on prisoners on remand is available, which is unfortunate given the high suicide rates among prisoners awaiting trial. The absence of such data makes comparisons of Swiss prison suicide rates considerably more difficult. Another important difference between Swiss institutions and those in England and in other English-speaking countries is that sentences in Switzerland are considerably shorter, even for those convicted of relatively serious offences.[3] Given that prison suicide rates do not remain stable over the period of imprisonment, but are higher after intake and decrease with length of stay (O'Mahony 1996), the high proportion of short-term prisoners passing through the Swiss correctional system is likely to inflate the Swiss prison suicide rate.

[2] The study was conducted in 2002 while the first author spent a sabbatical period at the Lausanne University *École des sciences criminelles*.

[3] Detailed data on average sentence length can be found in *European Sourcebook of Crime and Criminal Justice Statistics* (2003), Tables 3.2.4.1–3.2.4.13 (pp. 158–83). This document is also available under http://www.europeansourcebook.org.

Data sources and coding

Convicted prisoners

Convicted prisoners comprised those who were: (a) convicted and sentenced,[4] and (b) untried but had made a statement of guilt and thus anticipated serving time in an ordinary prison rather than in pre-trial detention.[5] Data on convicted prisoners who died between 1984 and 2000 were collected from the *Office fédéral de la statistique* (OFS). The data had originated from the Prison Registration Board and had been supplied in a pre-coded format, using the following death categories: natural death; suicide; overdose; illness/disease; road traffic accident; other accident; killed at the scene of a crime; killed by another inmate; and AIDS related deaths. These death categories were not rigidly defined. When prisoners died, the cause of death was determined by prison doctors, members of the cantonal medical-legal services or other health professionals. The OFS did not receive information on the person (name, profession etc.) responsible for recording the cause of death. It is likely that the procedures for recording cause of death varied from canton to canton, although a police investigation is the rule in case of unnatural death.[6]

Included in the data were convicted prisoners who died outside prison establishments, for example, while they were on home leave or during attempted escapes. It was not possible to collect death data on prisoners who died during pre-trial detention, because such data are not collected at central government level.

Fingerprinted suspects

Prison studies on death have commonly made comparisons with the general population; however, this is not comparing 'like with like'. An aim of the present study is to select a population more similar to prisoners, for comparison purposes. However, the lack of centrally-held data on relevant

[4] Under Swiss law (and, more generally, under continental law) defendants are usually sentenced immediately once a verdict has been reached, i.e. the same bench of judges sets the sentence during the same hearing.

[5] According to section 69 of the Swiss Criminal Code, the time passed in pre-trial detention is deducted from the sentence. The most important incentives to anticipate serving a sentence are the broader working and educational arrangements in an ordinary prison.

[6] In case of a prison suicide, this is practically unavoidable since an eventual responsibility of prison staff will need to be assessed. Switzerland has a system of compulsory prosecution (Trechsel and Killias, 2004), so the procedure is not dependent on any action from third parties.

populations restricted the choice; for example, it was not possible to use offenders serving sentences in the community as the comparison group, as had been done by Sattar (2001). Instead, the comparison group comprised a sample of the general population who at some point in their lives, had been suspected of involvement in criminal activity and therefore had their fingerprints taken (hereafter referred to as fingerprinted suspects). The files of these fingerprinted suspects were held centrally by the *Office fédéral de la police (OFP)*, and contained socio-demographic information and details about the reason for fingerprinting (except for those who were immediately found to be innocent). Details of death are recorded at cantonal level by the local police authorities. In order to keep the files up-to-date, the cantons are required to inform the OFP of all deaths, although the actual details of the cause of death are not provided. It was not possible to determine which persons had a criminal record. However, under Swiss law, fingerprinted suspects who are not subsequently convicted can request for their file to be deleted (Schmid 1997), and often the police do this even without a formal request. Therefore, it seems likely that the fingerprinted suspects group would comprise almost exclusively convicted offenders.

The sample of fingerprinted suspects was restricted to persons aged between 18 and 40 years, because a large proportion of the prison population falls within this age range. As the OFP destroyed case files several years after notification of death, it was only possible to collect data on persons who died relatively recently. Therefore, data was collected on fingerprinted suspects who died in Switzerland between 1997 and 2001. An anonymized data collection sheet was used to collect data from the OFP and the cantonal police authorities, in a way that did not violate Switzerland's strict data protection laws. The OFP held the files of deceased fingerprinted persons for about two years. Staff at the OFP completed a two-part data collection form for each fingerprinted person. The first part of the form, which contained an identification (id) code and the offence category for which the suspect had been fingerprinted was returned to the authors. The second part of the form, which contained the name, id code and date of birth of the fingerprinted suspect, was sent by the OFP to the police department of the canton in which the person had died. The cantonal police departments are routinely informed of any unnatural death (homicide, accident, suicide and overdose). The police were requested to indicate on the form the cause of death and return to the authors (without the section containing the suspect's name and date of birth). This procedure allowed the fingerprinted suspects to remain anonymous to the authors and thus ensured that no data protection laws were infringed.

Results

Deaths in the prison populations in Switzerland

The number of convicted adult prisoners who died between 1984 and 2000 was 266. Table 1 shows that the most common causes of death, in descending order, were illness/disease and other natural causes (34.6 percent), drug overdose (28.6 percent), and suicide (28.2 percent).

Table 1 Prisoner deaths using OFS codes

	Number	*%*
All unnatural deaths	*174*	*65.4*
Drug overdose	76	28.6
Suicide	75	28.2
Road traffic and other accident	14	5.3
Killed in homicide	9	3.4
All natural deaths (illness/disease/AIDS)	*32*	*34.6*
All deaths	**266**	**100**

Suicide is the second biggest killer of jail[7] inmates in the USA (Stephan 2001). Studies from Western European countries such as England and Wales (Dooley 1990; Dalton 1998) and Finland (Joukamaa 1997) found suicide to be the biggest killer of prisoners. The exclusion of pre-trial detainees from the figures could explain why Switzerland did not follow the trend of other Western European countries. It is suspected that the proportion of all prisoner deaths accounted for by suicides would have been higher if pre-trial detainees could have been included. Previous research has found remand or pre-trial prisoners to account for a large proportion of suicides (Scott-Denoon 1984; Backett 1987; Dooley 1990; Biles 1992; Morrison 1996). Finally, because of the way the Swiss deaths data were coded, it is not possible to determine how many drug-related suicides were categorized as drug-related death rather than suicide, or vice versa.

The proportion of prisoner deaths due to drug overdose was 28.6 percent. Although it has been suggested that many drug-related incidents (including drug-related deaths) in Switzerland occur when prisoners are on home-leave,[8] this figure is in stark contrast to Sattar (2001) who found that

[7] US jails tend to hold unsentenced and remanded prisoners and also short-term sentenced prisoners (generally under one year).

[8] Prisoners serving long sentences are eligible for home leave at weekends, when they are at the one-third point in their sentence.

only three percent of prisoners' deaths in England and Wales in 1996–7 were drug and/or alcohol related. One possible explanation is that Switzerland may have experienced a bigger drug problem than England and Wales during the years under scrutiny. In 1995 for example, the number of suspects known to the police per 100,000 for (total) drug offences was 586 for Switzerland and 166 for England and Wales and for drug trafficking, the rates were 105 and 23 respectively (European Sourcebook, 2003, pp. 61–2). Even more relevant may be, however, that Switzerland had a substantially higher rate of deaths related to drug-overdose during the early 1990s. In 1995, the respective rates were 50 and 13 per 1m.[9] Furthermore, it should be noted that the Swiss prison population comprises a larger proportion of serious offenders (because fewer offenders serve prison sentences for theft). In 1999 the number of prisoners per 100,000 population convicted for all thefts were 10 for Switzerland and 28 for England and Wales (European Sourcebook, 2003, 209).

A large proportion of the prisoners who died were male ($n = 250$, 94.0 percent). Sixteen female prisoners died, seven from natural causes and nine from a drug overdose. This matches precisely the proportion of male prisoners over the whole study period (on average, 94.2 percent).

Over two-thirds (69.2 percent) of the 266 prisoners who died were Swiss nationals. This proportion is similar to the proportion of Swiss nationals in the prison population in 1984 (69.4 percent), although by 2001 this had dropped to 37.0 percent. Over the entire study period, 49 percent of the prison population were foreign nationals, on average. Therefore, foreign nationals appear to be under-represented in the prisoner deaths group. Table 2 shows that a larger proportion of foreigners than of Swiss nationals died from natural causes and homicide/other violence,

Table 2 Prisoner deaths by nationality

	Swiss nationals	*Non-Swiss nationals*
All natural causes	*59 (32.1%)*	*33 (40.2%)*
Unnatural deaths	*125 (67.9%)*	*49 (59.8%)*
Drug overdose	55 (29.9%)	21 (25.6%)
Suicide	55 (29.9%)	20 (24.4%)
All accidents	12 (6.5%)	2 (2.4%)
Homicide/other violence	3 (1.6%)	6 (7.3%)
All deaths	**184 (100%)**	**82 (99.9%)**

[9] Statistics from the Swiss Federal Office of Public Health and from *Health Statistics Quarterly, 13* (2002).

Table 3 Cause of prisoner deaths by age range

	Age range					
	15–24	*25–34*	*35–44*	*45–54*	*55+*	*Total*
Natural	11 (12.0%)	29 (31.5%)	19 (20.7%)	13 (14.1%)	20 (21.7%)	92 (100%)
Suicide	9 (12.0%)	37 (49.3%)	21 (28.0%)	5 (6.7%)	3 (4.0%)	75 (100%)
Accident	5 (35.7%)	7 (50.0%)	2 (14.3%)	–	–	14 (100%)
Drug overdose	24 (31.6%)	45 (59.2%)	7 (9.2%)	–	–	76 (100%)
Homicide/other violence	3 (33.3%)	3 (33.3%)	1 (11.1%)	1 (11.1%)	1 (11.1%)	9 (100%)
All deaths	**52**	**121**	**50**	**19**	**24**	

whereas a larger proportion of Swiss nationals' than of foreigners' deaths were due to suicide and drug overdoses. However, these differences were not statistically significant.

The age at death ranged from 17 to 66 years, with a mean age of 33.5 years. Table 3 shows death by age range. The 25 to 34-year-olds accounted for almost half of all deaths (45.5 percent) and in line with previous research in Australia and England and Wales, they also accounted for the largest proportion of all types of deaths (Morrison 1996; Sattar 2001). Prisoners aged under 44 years accounted for 84 percent of all deaths and 94 percent of all unnatural forms of death. Similarly, offenders under age 44 years accounted for 86.5 percent of Switzerland's convicted prison population.

Suicides, all accidental deaths, drug overdoses and homicides were collapsed to form a simplified variable of death (unnatural death). The Lambda Coefficient was used with unnatural death as the dependent variable. A significant difference between age range and unnatural death was found ($r_{\_}$ (n = 266) = 0.25, p < 0.001), suggesting that unnatural or violent forms of death are more common among younger offenders whereas natural deaths are more common among older offenders. The proportions of natural deaths were 43.5 percent for the under 34-year-olds and 56.5 percent for those aged over 34 years. The proportions of unnatural deaths were 76.4 percent for the under 34-year-olds and 23.6 percent for the over 34 years. These findings concur with previous research conducted in Australia and in England and Wales (Liebling 1992; Biles et al. 1999; Sattar 2001).

Table 4 Prisoner deaths by type of correctional institution

Type of prison	*Deaths*		*% of prison population**
	N	*%*	
Repeat offenders (inc. closed)	100	37.6	35
District	65	24.4	37
Semi–open	62	23.3	19
Education for work	16	6.0	4
Execution of measures	12	4.5	2
Open	11	4.1	4
Total	**266**	**100**	**100**

* *Source*: OFS data for 2001.

Table 4 shows that over one-third of all deaths (37.6 percent) occurred in institutions for repeat offenders such as closed prisons. Institutions for repeat offenders, especially serious repeat offenders, tend to have harsher regimes than other types of institutions and also contain more foreign prisoners (because they are considered to be at high risk of escape). Just under one-quarter of all deaths occurred in district prisons (24.4 percent) and in semi-open prisons (23.3 percent). District prisons tend to house pre-trial detention prisoners, short-termers and prisoners in half-time detention.

Deaths in repeat offender prisons and open prisons were proportionally representative of the prison population, as can be seen in Table 4 (last column). However, deaths in semi-open prisons and institutions for education for work and institutions for the execution of measures (i.e., medical [psychiatric] treatment) were disproportionately over-represented and deaths in district prisons were disproportionately under-represented. It should be noted, however, that prisoners awaiting trial are not included in these figures (neither in the numerator nor in the denominator). This is important since, as observed above, pre-trial detention (which is usually in district prisons) is usually associated with particularly high suicide rates. On the other hand, convicted offenders who are serving their sentence in district prisons tend to be predominantly traffic offenders who may be at lower risk of violent death given their socio-psychological profile. The somewhat disproportionate rate of deaths in institutions for education for work and the execution of measures (i.e. 'treatment orders') may be related to the relatively frequent use of such institutions for drug-addicts and

Table 5 Cause of prisoner deaths by type of institution

Type of institution	*Cause of death*					
	Natural	*Suicide*	*Accident*	*Drug overdose*	*Homicide/ violence*	*Total*
Repeat offenders	32 (32.0%)	28 (28.0%)	3 (0.03%)	31 (31.0%)	6 (0.06%)	100 (100.0%)
Open	4 (36.4%)	2 (18.2%)	3 (27.3%)	2 (18.2%)	0 –	11 (100.1%)
District	27 (41.5%)	17 (26.2%)	4 (6.2%)	15 (23.1%)	2 (3.1%)	65 (100.1%)
Education for work	3 (18.8%)	3 (18.8%)	1 (6.3%)	9 (56.3%)	0 –	16 (100.2%)
Semi-open	23 (37.1%)	20 (32.3%)	2 (3.2%)	17 (27.4%)	0 –	62 (100.0%)
Execution of measures	3 (25.0%)	5 (41.7%)	1 (8.3%)	2 (16.7%)	1 (8.3%)	12 (100.0%)

mentally disturbed offenders who, according to other studies, may generally face higher risks of violent death (Haas 2001; Escard et al. 2003).

Table 5 shows that in institutions for repeat offenders, natural causes, suicides and drug overdoses, each accounted for almost one-third of all deaths. In open institutions, natural causes accounted for 36.4 percent of deaths and accidents accounted for 27.3 percent of deaths. In district prisons, natural deaths accounted for 41.5 percent of deaths and suicide accounted for 26.2 percent of deaths. In contrast, in education for work institutions, drug overdoses accounted for 56.3 percent of all deaths of adults aged 18 years or over. This reflects the policy of Swiss judges to prescribe education for work mostly for young adults aged 18 to 25 with severe behavioural problems, including drug abuse. In semi-open institutions, natural causes accounted for 37.1 percent of deaths and suicide accounted for 32.3 percent of deaths. In institutions for the execution of treatment measures, suicide accounted for 41.7 percent of deaths.

The early stage of custody is known to be a risky time for prisoners. Studies have found that a large proportion of prisoners die in the first month of incarceration: 41 percent according to Backett (1987) and 45 percent according to Crighton and Towl (1997) and Dooley (1990). Table 6 (over) shows that the number of prisoners who died between one and four weeks of starting their sentence was 20.3 percent (of these deaths, 42.6 percent were from suicide and 38.9 percent were from natural causes). This is less than half the proportion found in previous studies; the exclusion

Table 6 Time between start of sentence and deaths in prison

Time	*Number of deaths*	*% of deaths*
1 to 4 weeks	54	20.3
5 to 8 weeks	38	14.3
9 to 12 weeks	33	12.4
13 to 24 weeks	41	15.4
25 to 36 weeks	25	9.4
37 to 52 weeks	27	10.2
1 to 2 years	34	12.8
2 to 3 years	7	2.6
3 years and over	7	2.6
Total	**266**	**100**

of pre-trial detainees may account for this finding. Lloyd (1990) pointed out that many suicides in the first month of custody may occur among remand prisoners.

Figure 1 shows cause of death by year. There are no clear trends for the different types of death, except for deaths due to drug overdoses, which increased during the early 1990s, peaking in 1992 and 1993 with 11 deaths in both these years. The problem of drug overdoses in prison reflected the drug problems in Swiss society during the 1990s. The drug problem, especially heroin misuse, led the Swiss government to develop and implement harm reduction strategies, first in the general population and then a few years later in prisons. In the general population, by the late 1990s, around 15,000 people had received methadone treatment and around 1000 had received heroin treatment (Uchtenhagen et al. 1999).

In prisons, methadone treatment is normally offered, although heroin treatment is available in two prisons. These treatment programmes help explain the reduction in deaths due to drug overdoses in prison. Indeed, criminal involvement (for 12 offences, including robbery, burglary and drug dealing) among addicts has decreased by 89 percent for those receiving heroin, and by 64 percent for those receiving methadone. This has led, among addicts treated with heroin or methadone, to a similar reduction in police contacts, in convictions and in commitments to prison (Killias et al. 2002), particularly the total number of days of custody and pre-trial detention which has decreased by more than 90 percent. Thus, there are now fewer addicts in Swiss prisons compared to the early 1990s and even the 1980s, when they comprised approximately one-third of the total prison population (Joset 1984). Figure 1 shows that the decrease of addicts among prisoners in Switzerland is reflected by a substantial decrease in

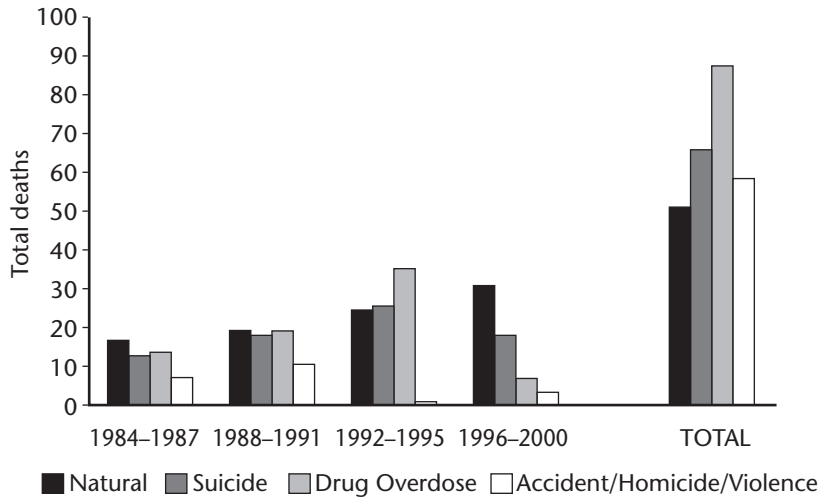

Figure 1 Cause of prisoner deaths by year (1984–2000).

deaths due to drug overdose since 1994 (i.e., the start of the large-scale harm-reduction program). This seems to be the only cause of death which has undergone substantial fluctuations over the 16-year-period considered in this study.

Comparison between Switzerland and England and Wales

Annual suicide rates were not calculated because of small numbers. Instead, rates of unnatural death are presented in Tables 7 and 8 (over). Rates of unnatural death ranged from 79.4 to 504.1 per 100,000 average annual population and 38.0 to 177.8 per 100,000 receptions (see later for discussion of using rates based on total annual receptions). It was possible to compare the result with unnatural death rates for prisoners in England and Wales (Sattar 2001). During the early 1990s the unnatural death rate was higher for Swiss prisoners than for prisoners in England and Wales; in 1993, for example, there was a four-fold difference. The difference narrowed, so that by 1999 the rates had become fairly similar. The reduction in the unnatural death rate of Swiss prisoners is likely to have been influenced by a reduction in deaths due to drug overdoses, because of the implementation of effective drug treatment programmes previously discussed.

Overcrowding is another likely explanation for the pattern of unnatural deaths of prisoners in Switzerland. There is evidence from the USA

Table 7 Annual unnatural death rates for prisoners in Switzerland

Year	*Number of unnatural deaths**	*Average annual population*	*Death rate per 100,000 AAP*	*Total annual receptions*	*Death rate per 100,000 receptions*
1984	14	3225	434.1	10,267	136.4
1985	5	3431	145.7	10,660	46.9
1986	6	3461	173.4	10,524	57.0
1987	10	3514	284.6	10,907	91.7
1988	8	3449	232.0	11,469	69.8
1989	13	3390	383.5	11,691	111.2
1990	12	3462	346.6	10,813	111.0
1991	15	3525	425.5	10,988	136.5
1992	17	3554	478.3	10,654	159.6
1993	19	3769	504.1	10,685	177.8
1994	16	3942	405.9	10,690	149.7
1995	11	3790	290.2	9047	121.6
1996	12	3706	323.8	8394	143.0
1997	6	3658	164.0	7843	76.5
1998	3	3777	79.4	7902	38.0
1999	5	3900	128.2	7320	68.3
2000	2	Unavailable	–	Unavailable	–

Note:
* Self-inflicted deaths (i.e., suicides, open verdicts, death by misadventure and accidental deaths) and homicide combined.

that overcrowding can lead to violence in prisons. Palermo et al. (1996: 455) stated that prison overcrowding was 'conducive to irritability, discomfort, hostility and even claustrophobic panic'. Smith (1982) found prison overcrowding to be positively correlated with rule breaking, mortality, mental and physical illness and recidivism. The rise in the Swiss prison population led to overcrowding becoming a problem in many institutions during the early 1980s (OFS 1985), yet the building of new prisons did not start until the late 1980s. This meant the problem of overcrowding continued well into the 1990s and may provide some explanation for the peak and then drop in unnatural deaths shown in Figure 1.

The unnatural death rates were based on average annual populations (AAP) and total annual receptions. The reasons for using both types of populations data is now explained. Prison studies of suicide tend to use AAP. AAP death rates refer to the number of deaths per 100,000 person-years, and assumes that each person at risk is observed for one whole

Table 8 Annual unnatural death rates for prisoners in England and Wales

Year	*Number of unnatural deaths*	*Average annual population*	*Unnatural death rate per 100,000 AAP*	*Total annual receptions**	*Unnatural death rate per 100,000 receptions*
1991	44	45,897	95.9	Unavailable	–
1992	43	45,817	93.9	Unavailable	–
1993	50	44,566	112.2	117,310	42.6
1994	65	48,794	133.2	126,120	51.5
1995	61	51,047	119.5	125,654	48.5
1996	66	55,281	119.5	120,625	54.7
1997	70	61,114	114.5	125,442	55.8
1998	87	65,298	133.2	132,100	65.9
1999	91	64,771	140.5	135,098	67.4
2000	84	64,992	129.2	129,733	64.7

Note:
* no double counting for prisoners at remand and sentence stage.
Source: Sattar (2001).

person-year. Although this assumption is valid for the general population, it is not so for the prison population, because of the high throughput of prisoners. The issue of high throughput is particularly important in the case in Switzerland, where a large proportion of prisoners are serving short-term custodial sentences: for example, in 1999 the AAP was 3999 but the total number of offenders received into prison was 7320. Furthermore, AAP assumes that one person-year shared by several individuals is equivalent to one person-year relating to only one individual. However, as previously explained, the risk of death (from suicide at least) is not constant over the period of imprisonment, but tends to be higher during the early stage of custody for remand and sentenced prisoners. Therefore, 'the risk accumulated during a person-year which is shared by several prisoners will tend to be greater than the risk accruing to a man year spent by one individual' (O'Mahony 1996: 46). Therefore suicide rates based on the average population will increase, with the number of persons sharing the person-year and thus are likely to over-estimate the true rate (Crighton and Towl 1997). Death rates based on total receptions are considered by some to provide a more accurate estimate of the suicide rate for remand prisoners, because 'the figures for receptions will more accurately reflect the number of individuals placed in the high risk environment of prison over comparatively short periods' (Crighton and Towl 1997: 14). However, there is

also an argument that rates based on receptions can under-estimate the problem.

Comparison of deaths among prisoners and criminals at large in Switzerland

The OFP provided data on 120 adults (aged under 40 years) who had been fingerprinted at some point in their lives and died in Switzerland in 2001 (n = 40), 2000 (n = 67), 1999 (n = 10), 1998, (n = 1) and 1997 (n = 2).

Table 9 shows the offences for which the person was fingerprinted. Thirty percent of persons had been fingerprinted for drugs offences and 27.5 percent for theft and handling offences.

Table 9 Offences for which persons were finger–printed

	Number	*%*
Violence against the person (e.g., murder, assault)	5	4.2
Sexual offences (e.g., rape, gross indecency with children)	2	1.7
Burglary	23	19.2
Robbery	7	5.8
Theft and handling	33	27.5
Drugs offences	36	30.0
Other (e.g., arson, drink-driving, blackmail)	11	9.2
Unknown	3	2.5
Total	**120**	**100**

Table 10 shows that as with the prisoners group, the most common causes of death (in descending order) were natural causes (48.3 percent), drug overdoses (24.2 percent) and suicide (13.3 percent).

Since the police authorities are not automatically informed of the details of natural deaths, many of the 'unknown' causes may in fact be natural causes, therefore, 'unknown' causes were merged with 'natural causes' in the following analyses. There were 99 males and 21 females. Eighty-three percent of fingerprinted suspects were male compared with 94 percent of prisoners. One-quarter of fingerprinted suspects were foreign nationals, compared with one-half of prisoners. The foreign nationals came from many different countries, including five from the former Yugoslavia, five from Italy, and two from Turkey. Ages ranged from 18 to 40 years (since the study included only this age-group), with a mean age of 30.6 years. Many (86 percent) drug overdoses and over half (56 percent) of the

Table 10 Cause of death among fingerprinted persons

	Number	*%*
Natural deaths	28	23.3
Suicide	16	13.3
Accident	7	5.8
Drug overdose*	29	24.2
Homicide/other violent death	6	5.0
Other	4	3.3
Unknown	30	25.0
Total	**120**	**100**

Note:
* includes one drug and alcohol related death.

suicides occurred among the 25 to 34-year-olds. Many non-natural deaths occurred among the under 34-year-olds: up to 84 percent, if it is assumed that all unknown deaths are in fact due to natural causes.

Discussion

This study examined the nature and extent of death among prisoners and fingerprinted suspects in Switzerland. For both groups, the most common causes of death (in descending order) were natural causes, drug overdoses and suicides. Drug overdoses appeared to be more of a problem than suicide for fingerprinted persons than prisoners. This is not surprising because people in the community have greater access to drugs than do prisoners. It would have been interesting to have known what proportion of the drug deaths were purposefully inflicted or accidental; however, these details were not available.

The mean age at death was similar for prisoners and fingerprinted suspects: both groups tended to die in their early 30s. In line with previous research, violent death was most common among younger prisoners and natural deaths were more common among older persons. Over three-quarters of all violent deaths occurred among the under 34-year-olds, in both groups. Drug overdoses accounted for a large proportion of deaths of 25 to 34-year-old prisoners (almost two-thirds) and fingerprinted persons (over three-quarters). Around half of all suicides occurred among the 25 to 34-year-olds in both groups.

Focusing on prisons, more than one-third of deaths occurred in institutions for repeat offenders and almost one-quarter occurred in district

prisons and semi-open prisons. Around 20 percent of prisoners died between one and four weeks of starting their sentence, which is half the proportion found in other studies. Violent death rate comparisons were made with England and Wales. During the early 1990s, the violent death rate of Swiss prisoners was higher than the rate for prisoners in England and Wales; however, the difference narrowed so that by 1999 the rates had become fairly similar.

Challenges and limitations

Conducting criminological research in Switzerland is challenging for two main reasons. First, Switzerland is a federal jurisdiction, which means the country is largely governed from a cantonal rather than a national level. Information of relevance in criminological research is often not recorded centrally at national level, which makes conducting research difficult. Often data will need to be collected directly from each of the 26 cantons; however, it is possible that not all cantons will hold the same information or record information in a consistent manner.

Secondly, Switzerland has strict data protection laws, which can make gaining access to data at best a difficult and lengthy task, and at worse impossible. In the present study, gaining access to death data on prisoners was relatively easy because the relevant information was held centrally by the OFS. In contrast, choosing and collecting death data on a comparison group proved more difficult. Lack of centrally-held data meant it was not possible to use offenders serving sentences in the community, as had been intended. Therefore, fingerprinted suspects were used instead. By working with cooperative staff at the OFP, it was possible to develop the 'triangle' procedure for collecting data described in the data sources and coding section.

The exclusion of pre-trial detainees from the prisoners group is a limitation as it may have led to an underestimation of the proportion of deaths due to suicide, because of evidence that pre-trial detainees are at particularly high risk of suicide (e.g. Dooley 1990; Biles 1992). The death data were provided in a pre-coded format with little detail, and with no information about the coding framework used. This meant that it was not possible to determine whether suicides caused by drug overdoses were categorized as suicides or drug overdoses, or what proportion of suicides were due to hangings. Many studies on death have used the International Classification of Diseases system for coding purposes; however, this was not possible for the present study. Therefore, comparisons with other studies must be made cautiously. Finally, limited details on the fingerprinted suspects meant that it was not possible to calculate their death rates, nor

therefore to compare death rates between prisoners and the comparison group, nor to determine how similar the two groups were in terms of their offending behaviour, as evidenced by convictions, for example.

Conclusions and implications

Suicide and drug overdoses (along with natural causes) were the main causes of death of prisoners and fingerprinted suspects. For prisoners at least, the data suggest that the Swiss government's anti-drugs policy had worked. Although it was not possible to compute standardized mortality rates for criminals at large in Switzerland, the high proportion of causes of death other than suicide suggests that, in line with research in other countries, offenders in the community are about as vulnerable to death as are prisoners. This reinforces the external validity of similar findings in England and Wales (Sattar 2001). The circumstances of imprisonment by themselves may indeed not increase the likelihood of death or suicide; offenders' characteristics and personal histories may account for much or even for all of the elevated rate of mortality and suicide of prisoners compared with the population at large. Therefore, in framing prevention strategies, there is a need to consider these offender characteristics and personal histories (for example, previous self-harming behaviour, mental illness and substance abuse). Clearly, further similar studies in other countries would be desirable. Finally, conducting criminological research in Switzerland is currently hampered by a lack of centrally-held data on issues of relevance to social policy. Given the value of research in informing the development of policy, it is important that the federal government should address this problem.

Appendix A: Correction statistics for 1995–99 (OFS, Feb 2001)

Correction statistics	*1995*	*1996*	*1997*	*1998*	*1999*
Convicted offenders					
Convictions	67,174	67,006	68,609	72,598	70,336
All convicted offenders	62,938	62,745	64,192	67,693	65,891
Males	54,371	54,399	55,664	58,399	56,396
Females	8567	8346	8538	9294	9495
Swiss citizens	35,298	35,013	35,003	36,314	34,740
Non–Swiss citizens	27,640	27,732	29,189	31,379	31,151

Appendix A (contd.)

Correction statistics	*1995*	*1996*	*1997*	*1998*	*1999*
Custodial sentences					
All sentences	43,992	45,188	46,898	47,975	46,567
Suspended	33,575	34,642	36,232	36,753	36,200
Unsuspended	10,417	10,546	10,666	11,222	10,367
Sentences <18 months	42,620	43,639	45,487	46,444	45,116
Suspended	33,202	34,201	35,820	36,339	35,766
Unsuspended	9418	9438	9667	10,105	9350
Community service	*	933	1958	2490	2935
Life sentences	4	4	1	0	0
Detentions (Arrêts)	5239	5372	5257	5210	4585
Imprisonments (Emprisonnement)	39,042	39,857	41,752	42,797	41,992
Penal servitudes (Réclusion)	783	850	784	802	721
Measures					
All measures	1258	1061	1059	1004	890
Mentally disordered offenders[1]	215	120	140	164	128
Offenders with substance abuse problems[2]	980	884	873	796	723
Younger offenders in education for work[3]	57	51	43	42	36

Notes:
* no comparable figures.
[1] Art. 43 CP.
[2] Art. 44 CP.
[3] Art. 100bis CP.

Appendix B: Overall death rates per 100,000 prisoners Annual death rates per 100,000 prisoners

Year	*Number of deaths*	*Average annual population*	*Death rate per 100,000 AAP*	*Total annual receptions*	*Death rate per 100,000 receptions*
1984	16	3225	496.1	10,267	155.8
1985	10	3431	291.5	10,660	93.8
1986	9	3461	260.0	10,524	85.5
1987	17	3514	483.8	10,907	155.9
1988	11	3449	318.9	11,469	95.9
1989	17	3390	501.5	11,691	145.4
1990	17	3462	491.0	10,813	157.2
1991	22	3525	624.1	10,988	200.2

Year	*Number of deaths*	*Average annual population*	*Death rate per 100,000 AAP*	*Total annual receptions*	*Death rate per 100,000 receptions*
1992	22	3554	619.0	10,654	206.5
1993	26	3769	689.8	10,685	243.3
1994	22	3942	558.1	10,690	205.8
1995	18	3790	474.9	9047	199.0
1996	17	3706	458.7	8394	202.5
1997	9	3658	246.0	7843	114.8
1998	14	3777	370.7	7902	177.1
1999	11	3900	282.1	7320	150.3
2000	8	Unavailable	–	Unavailable	–

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