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What Is Known About Prisoner Deaths Internationally?

Results Of A ProQuest Database Search

UK Research and Innovation

prisonDEATH

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Introduction

The mortality rate amongst prisoners is up to 50% higher than the mortality rate in the community (UNOHCHR, 2019: 9). Globally, there are 11.5 million prisoners incarcerated and prisoner death rates are increasing due to factors including growing and aging prison populations (Van Zyl Smit and Appleton, 2019). In England and Wales alone, record prison suicide numbers in 2016 cost an estimated £400 million (Tomczak and Banwell-Moore, 2021). Prison deaths and prison suicides harm society, bereaved families, prisoners, prison staff and investigators (Banwell-Moore et al, 2022). Moreover, unsafe prisons mean unsafe societies (Tomczak, 2022).

Despite the significant increases in prison mortality rates, prison suicides, and associated costs and harms of prison deaths, there is a dearth of research internationally that examines prisoner mortality. This area of research has not received adequate scholarly attention and remains largely overlooked by social scientists (Liebling, 2017). The limited research on prisoner death investigations illustrates that prisoner death investigations are issues of 'global importance […] they provide opportunities to learn lessons and save lives' (Tomczak, 2018: 6).

As part of a larger project seeking to conceptualise prisoner deaths worldwide, a rigorous preliminary review of available (inter)national prisoner death scholarship was undertaken from February – April 2022. Its results are provided here and have facilitated preliminary identification of gaps in knowledge regarding prison deaths globally.

Methodology

A literature database review was conducted to identify, review and analyse research evidence on prisoner death(s). The review adopted a systematic literature review methodology: a method of making sense of large bodies of information, mapping out areas of uncertainty and identifying where relevant research has been done (Petticrew and Roberts, 2006). Systematic reviews are 'less of a discussion of the literature' and more a method that enables one to 'summarize, appraise, and communicate the results […] of otherwise unmanageable quantities of research': they provide a means of dealing with an

'information mountain', 'by allowing large amounts of research information to be distilled into a manageable form' and identifying gaps in knowledge (Petticrew and Roberts, 2006: 10, 11). The overall aim of a systematic review is to produce a scientific 'synthesis of the data' (Robson, 2011: 103).

The research questions were specified precisely (Bryman, 2012: 291): i) what research has been conducted on 'death' in prison?; ii) where has this research been conducted?; iii) what are the causes of death in prisons?; iv) what are the contributory factors?; v) where (geographically) has this research been conducted?

Systematic database literature review

An academic database search was conducted to capture all literature on the key theme 'deaths in prison' across large academic library catalogues, which store academic material in multiple formats. The ProQuest database was used in this search, which gives wide access to a range of abstract and index databases, full collections and grey literature. The University of Nottingham has access to 26 database resources via ProQuest, including: ProQuest Dissertations and Theses, ProQuest Central, EBook Central and Social Science Premium. Whilst other library databases (i.e. WebScience and EBSCO) could have been included in this review, research time constraints limited the search to one reputable and widely used academic library catalogue (ProQuest).

Stage 1: Search criteria

The initial search term used was: prison* death* and the search criteria initially included: dissertations and theses, scholarly journals, books, reports, government and official publications articles, book chapters, editorials, reports, case studies, evidence-based healthcare, annual report, literature review, statistics/data report. The initial search excluded: 'commentary', 'general information, news', 'editorial', 'back matter', interview, undefined and conference proceedings. This initial search term returned a total of 3,174,953 results. Filters were then applied to include only: Books, Dissertations and Theses, Reports, and Scholarly journals published from 1970 to present. These filters reduced the results to 633,714 . Additional filters of 'peer reviewed' and 'full text' further reduced results to 129,933.

The search term was then amended to 'prison* death* NOT row' and an additional search term 'prison* death NOT row' was included. The term 'row' was excluded due to the volume of prisoner death row and death penalty texts, which fell outside the study's focus on preventable deaths. Additional filters were also applied: 'peer reviewed' and 'full text'

scholarly journals and reports only (as such only full-text journals, magazines, and reports were returned). Excluding 'row' and applying the additional filters returned 3,112 results.

The final five search filters applied for stage 1 returned a total of 3,112 results. These filters were: i) publication date from 1970 to current; ii) 'peer-reviewed' scholarly journals and reports only; iii) 'full text'; iv) English-written; and v) 'prison* death* NOT row' and 'prison* death NOT row'. This process is summarised in Table 1 below.

Table 1: Scholarly database search

Search terms	Search results	Comments
prison* death*	3,174,953	The search criteria initially included: dissertations and theses, scholarly journals, books, reports, government and official publications articles, book chapters, editorials, reports, case studies, evidence-based healthcare, annual report, literature review, statistics/data report, and excluded: 'commentary', 'general information, news', 'editorial', 'back matter', 'interview', 'undefined', and 'conference proceedings'. This initial search returned a total of 3,174,953 results.
prison* death* with applied filters	633,714	Filters were then applied to only include: Books, Dissertations and Theses, Reports, and Scholarly journals published from 1/1/1970 to present. These applied filters reduced the results to 633,714.
prison* death* with further applied filters	129,933	Additional filters of 'peer reviewed' and 'full text' only reduced the number of results returned to 129,933.
'prison* death* NOT row' and 'prison* death NOT row'	3,112	The search term was then amended to 'prison* death* NOT 'row'. Applied filters: publication date from 1970 to current; 'peer-reviewed' scholarly journals and reports only (only journals, magazines, and reports were returned); and 'full text'. This search returned a total of 3,112 results

Stage 2: Systematic literature review

A total of 3,112 journal articles and reports were saved and processed in the second stage of the systematic review – the 'sifting' process. Each abstract and paper was checked for the key words: prison, prisoner and death. Some papers were excluded following a review of the abstract whereby it was clear that the criteria were not met. Other papers' abstracts were more ambiguous and a further search for the keywords needed to be undertaken. Papers on 'prisoner(s) of war' and 'prisoner death post-release' were excluded because these were beyond the focus of this project. The purpose of this sifting process was to extricate papers that specifically discussed recording (processes and data) of prison deaths, categories of prison deaths, rates of prison deaths, and causes/contributing factors.

The second sift reduced the results from 3,112 to a total of 79 papers. These final 79 papers were entered onto an Excel database to produce a 'categorised bibliography'. Three additional articles were included (total *n*=82) at the suggestion of the project lead and are clearly marked in subsequent table with an * after the authors' name (rows 19, 20 and 21). The 'categorised bibliography' included: author, title, year of publication, abstract, further information, jurisdiction, cause of death, contributing factors, time period (of the research/data provided).

Content analysis

Content analysis of each paper (*n*=82) was undertaken. Content analysis is a methodological technique used to make 'inferences by objectively and systematically identifying specified characteristics' and to search for certain ideas/themes within the text (Holsti, 1969: 14). This initial analysis stage – whereby each paper was read in full - resulted in 21 papers being excluded as they did not reach the inclusion criteria (set out above) and a further four papers were removed due to access issues. The final 57 papers are listed below in Table 2.

Table 2: Final systematic review papers and information

Reference	Cause of death	Contributing factor(s)	Further information	Where
Gray, C. J. (1998). Cultivating citizenship through zenophobia in Gabon - 1960-1995. *Africa Today*, 45(3), 389.	Suffocation	Overcrowding	In February 1994, sixty-seven prisoners - mostly Nigerian and Ghanaian nationals accused of being illegal immigrants - suffocated to death in an overcrowded cell in a Libreville Detention Center.	Gabon, Central Africa
Holden, R. R., & Kroner, D. G. (2003). Differentiating suicidal motivations and manifestations in a forensic sample. *Canadian Journal of Behavioural Science*, 35(1), 35-35.	Suicide	No specific factors determined	Within the prison system, offenders commit suicide at a higher rate than in the general population. For example, over a 10-year period (1966-76), the suicide rate in Canadian federal prisons was 95.0 per 100,000 as opposed to a rate of 14.2 for the general Canadian population. Between 1984 and 1985, the Canadian prison suicide rate reached a high of 197 per 100,000. Disproportionately high suicide rates for prison populations are consistent across countries.	Canada
Mashta, O. (1998). New story, but old mistakes. *Nursing Standard*, 12(40), 12.	Homicide of a prisoner by another prisoner (cell-sharing)	A serious breakdown in communications between health and social services	A prisoner homicide occurred in November 1994, in which Richard Linford, who suffered from paranoid schizophrenia, killed Christopher Edwards, who was also mentally ill, while they were locked up in the same cell at Chelmsford prison. The paper argues that all the professionals involved in the treatment of Richard Linford including the police, knew him to be highly disturbed, posing a risk to others. Yet he was placed in a prison cell with another mentally ill young man arrested on a minor offence of importuning a woman in the street. Both needed hospital care not a prison cell.	United Kingdom
Coles, D., & Shaw, H. (2000). Deaths in custody. *Mental Health Nursing*, 20(5), 6.	Suicide; and use of force (positional asphyxia following restraint)	Inappropriate use of prison as 'place of safety' and paucity of healthcare	INQUEST is a non-government organisation that works directly with the families of people who die in controversial circumstances in custody. This paper discusses a complaint made (by INQUEST) to, and upheld by, the Parliamentary Ombudsman about the death of Kenneth Severin, a young black remand prisoner who died while being restrained by prison officers in November 1995. The inquest recorded an open verdict with positional asphyxia, following restraint, as the cause of death. The complaint raised issues about prison health care, the treatment of mentally ill in prison, the use of strip cells, the lack of communication between discipline and medical staff. It also exposed failings to ensure that prison officers were properly trained in the dangers of control and restraint. The paper also provides details of two other death in custody cases and draws attention to the over-representation of black people among those who die, following the use of force by prison officers, police and nurses, citing 'institutional racism' within the NHS, police and prison services being at the heart of the problem.	United Kingdom
Cohen, L. (1999). Tearing down walls in Canada's prisons. *Canadian Medical Association Journal*, 160(12), 1804.	Prisoner heroin overdose	Inadequate healthcare provision	This article discusses 7 deaths (in 3 months) related to heroin overdoses in Kingston-area prisons - a death rate 200 times higher than in a similar male population outside the prisons.	Kingston, Canada

Towl, G. J., & Crighton, D. A.(1998). Suicide in prisons in England and Wales from 1988 to 1995. *Criminal Behaviour and Mental Health* 8(3), 184.	Suicide	Sentence stage (early, first two months); sentence type (being held); prison category (local prison)	This study is based on an examination of 377 official records (from the English Prison Service's Suicide Awareness Support Unit) of self-inflicted deaths in prisons in England and Wales for the period from 5 February 1988 to 5 November 1995. The results from the study suggest that the greater the sentence length the greater the tendency for an increased risk of suicide. Life-sentenced prisoners appear to be at an appreciably higher risk of suicide than determinate-sentenced prisoners. The different functions of the various categories of prison establishment are reflected in their regimes. For example, in local/remand prisons there is a high `throughput rate' amongst prisoners from, and to, the courts, and to other prisons. Such `throughput rates' tend to be lower in other Prison Service establishments. This is likely to be an important factor to consider when attempting to understand suicide in prisons. The majority of deaths (65%) occurred in local/remand prisons, with much lower rates being seen in category C training prisons (10%), youth custody centres (9%) and dispersal and category B training prisons (both 8%). In 71% of cases death occurred whilst the individual was located in a single cell, compared with 23% located in shared cells.	England and Wales
Turnbull, P. (1997).Vancouver summaries: prisons. *AIDS Care,* 9(1), 92-5.	AIDS	Inadequate care and treatment approaches	In the adult prison system HIV/AIDS is a serious problem, there have been at least 4,588 deaths and there are currently 5,279 cases of AIDS among adult prisoners. Interesting and innovative programmes to tackle the problems associated with HIV/AIDS in prison have been and are being tried throughout the world. However, a number of political, legal and cultural barriers exist hindering the development of effective prevention and care and treatment approaches.	Vancouver, Canada
Bardale, R., & Dixit, P. (2015). Suicide behind bars: A 10-year retrospective study. *Indian Journal of Psychiatry,* 57(1), 81-84.	Suicide	No specific factors determined	The present study was undertaken to assess the trends of suicide in custody in India and to identify characteristics that can be utilised to prevent such deaths. This study examined all available files into the death of people in custody through 2001 to 2010 (n=173 - out of which 14 cases were suicide). Information collected included age, sex, type of custody (jail or police lock-up), place of death/incident, medical attention received, presence of any associated disease, history of any psychiatric illness, substance abuse, and cause of death. Suicide in custody is a preventable but neglected problem in India. Preventing suicide in prison or police lock-ups is not primarily a medical matter but needs cooperation and coordination from various agencies. Screening individuals before putting them behind bars, identifying the important risk factors such as drug and alcohol abuse or mental illness and seeking appropriate medical aid may substantially reduce the number of such incidents. The prison or police lock-up environment itself may increase suicide risk.	India
Welchman, J., & Griener, G. G. (2005). Patient advocacy and professional associations: Individual and collective responsibilities. *Nursing Ethics,* 12(3), 296-304.	Acute bronchopneumonia; Hepatic cirrhosis, HIV/AIDS; and Hepatitis C	Lack of healthcare: substandard palliative care and substandard therapeutic care.	In North American nursing, advocacy for issues affecting identifiable patients is assigned to nurses. The authors argue that nursing associations' withdrawal from advocacy for patient care issues is detrimental to nurses and patients alike. Most nurses work in large institutions whose internal policies they cannot influence. When these create obstacles to good care, the inability of nurses to affect change can result in avoidable distress for them and for their patients. This point is illustrated with a case study: the circumstances of the death of Michael Joseph LeBlanc, an inmate at Kingston Penitentiary Regional Hospital (Ontario). The authors conclude that patients and their nurses will suffer unnecessarily unless or until nursing associations cease to burden individual nurses with the responsibility for patient advocacy.	Canada

Friedman, B. (2021). Toward a critical race theory of prison order in the wake of COVID-19 and its afterlives: When disaster collides with institutional death by design. *Sociological Perspectives*, 64(5), 689-705.	Covid-19	Race: 75 percent of people who died from COVID-19 while incarcerated in New York were Black	Early evidence already suggests incarcerated Black people are dying of Covid-19 at higher rates than others, with some dying just before their release date after serving decades in prison. In New York state, 75 percent of people who have died of Covid-19 while incarcerated identified as Black, Latinx, or both. The author theorises why prisons are natural epicentres for Covid-19, identifying the following institutional parameters as social factors: (1) death is by institutional design, where prison order is arranged so that people categorized as prisoners die socially, psychically, and physically; (2) promoting institutional survival rather than human survival is second nature during a disaster because the pre-existing social organization of prison life serves this purpose; and (3) when a disaster strikes causing severe loss to people and resources, uncertainty is managed by implementing strategies that magnify the death(s) of incarcerated people in exchange for the life of the institution.	USA
Scott, J. B. (2021). "Whoever dies, dies": A pedagogical model for understanding the Covid-19 outbreak in United States prisons. *Human Organization*, 80(4), 282-291.	Covid-19	Hand sanitizer banned; crowded cells; social distancing impossible; PPE shortages	United States prisons were hotbeds for the Covid-19 pandemic. Nearly half of the United States prison population, or five times the rate found in the general population, were infected. By May 2021, more than 400,000 incarcerated people in the United States were infected by the virus, and more than 2,700 had died. In some regions of the United States, incarceration was a more significant predictor of Covid-19 transmission than race, gender, or class. Limited social distancing and difficult to implement preventative measures helped to spread Covid-19 in prisons, while many incarcerated individuals felt that government policy prevented their ability to self-care. These feelings of alienation reflect a history of policy that links disease to deviance and social death.	USA
Eisler, P., B.A., & Smith, G., M.A. (2021). Tracking incarcerated individual mortality in local jails. *American Journal of Public Health,* 111, S63-S64.	Suicide; drug and alcohol poisoning	Privatised medical services; ill-equipped facilities to handle female prisoners needs	The data, the largest ever public accounting of US jail deaths, reveals how dozens of jails routinely post death rates two or three times the national average. Two thirds of the deaths identified involved individuals awaiting trial, unconvicted and presumed innocent. Thousands perished from preventable causes, including at least 2,070 from suicide and at least 618 from drug and alcohol poisoning. In recent years, incarcerated individuals died at higher rates in jails that privatised their medical services. Furthermore, a growing number of the incarcerated individuals who died were women, often held in male-oriented facilities ill-equipped to handle their needs.	USA
Fazel, S., & Baillargeon, J. (2011). The health of prisoners. *The Lancet,* 377(9769), 956-65.	Suicide; and natural causes	Poor and inadequate healthcare and healthcare policies	This paper discusses the prevalence and risk factors for some of the major physical and psychiatric diseases in prisoners, and the challenges to provide health-care services for this population. The paper reviews mortality rates in prisoners and discuss populations with particular health needs. Suicide is the leading cause of death in prisons, accounting for about half of all prison deaths. Rates of suicide in custody are lower in black and ethnic minority groups compared with white prisoners in many countries. Minority groups have different patterns of morbidity and mortality. This paper also discusses how results from studies in Europe, Australia, and the USA have shown that inmates have a high mortality after their release from prison.	International

Joukamaa, M.(1997). Prison suicide in Finland, 1969-1992. *Forensic Science International*, 89(3), 167-174.	Suicide; natural; accidental; violent; and undetermined deaths	Prison conditions: isolation/segregation. Prior psychiatric issues; inadequate mental healthcare.	Between 1969 and 1992 the deaths of a total of 384 prisoners were reported in Finland. The most common cause of death was suicide, which accounted for almost one half of the cases 47% (n=184). Two-fifths (n= 152) had died a natural death. Accidental deaths accounted for about 6% (n=25) and violent deaths, i.e. deaths due to homicide, for 3% (n= 12) of cases. In addition, in eleven cases the cause of death remained undetermined. About one half of the violent, accidental and undetermined deaths had occurred outside the prison; in these cases the prisoner either had permission to leave or died during an escape from prison. Suicides were 3.1 times as common in prisoners as in the general population. Those committing suicide were more commonly in central and provincial prisons. They represented more remand prisoners than among all Finnish prisoners. One third of the suicide cases had single sleeping quarters and almost one third had been in solitary confinement at the time of the suicide.	Finland
Neithercutt, M. G., & Zajac, P. (1995). Physical conditions and prisoner deaths: A clinical report. *Journal of Offender Rehabilitation*, 22(1-2), 165-78.	Prison death by hyperthermia	Neglect	The deaths of three inmates from hyperthermia during the cool of the morning at the California Medical Facility [CMF], Vacaville, California on July 3, 1991, are the focus of the paper. CMF is a male-only state prison medical facility. This report considers the deaths of the three inmates, spotlighting the physical surroundings of their demise. The three inmates died of the side effects of Haldol, heat and neglect. CMF was continuing to operate in violation of a court order to improve its psychiatric and medical care. environment can clearly be seen to be a problem of fatal proportions.	California
Novick, L. F., & Remmlinger, E. (1978). A study of 128 deaths in New York City correctional facilities (1971-1976): Implications for prisoner health care. *Medical Care*, 16(9), 749-756.	Suicide; natural; non-violent; violent drug overdose; attempted escape	Deficiencies of care: provider; corrections; system. History of drug or alcohol abuse. Previous suicide attempts	During a 5 1/2 year period, January 1971 through July 1976, 128 deaths occurred in New York City correctional facilities. The epidemiology of prisoner deaths including suicide was examined in a large incarcerated population. The study reviewed prisoner death cases in order to determine their causes and associated factors. The mean age of death was 34 years. Only 3 deaths occurred among females. Ethnic distribution of these deaths was similar to the prison population. Deaths of prisoners fell into two categories: external causes (suicide, accidents, homicide, legal intervention); and nonviolent causes. External causes accounted for 71 deaths. The leading cause of death was suicide, accounting for 52 deaths. The highest rate was in the 35 to 44 year age group. History of drug or alcohol abuse was reported by 69 per cent of the suicides. One-third of the prisoners who committed suicide had a history of previous suicide attempts or previous mental hospitalisations.	New York, USA
Iqtidar, M., Sharma, K., Mullaney, R., et al. (2018). Deaths in custody in the Irish prison service: 5-year retrospective study of drug toxicology and unnatural deaths. *BJPsych open*, 4(5), pp.401-403.	Suicide: misadventures; open verdicts; positive toxicology for illicit drugs	Toxicology	In 1997, it was noted that prison suicide in Ireland had increased markedly over the past 10 years. A 1999 report noted that in most deaths judged to be suicides, there had been an increase in deaths due to drug overdoses. This study examined the prevalence of positive post-mortem toxicology for illicit drugs by prisoners where the verdict at inquest was suicide, misadventure, or open. The 38 deaths included: 15 (39%) were given a verdict of suicide; 19 (50%) misadventures; and 4 (10%) open verdicts were recorded. Positive toxicology for illicit drugs was noted in 26 (68%) of cases. The coroner attributed death directly to overdose with illicit drugs in 16 of the 38 (42%) deaths. Temporary release: 14 of the 38 prisoners (37%) died while on temporary release. Unnatural deaths are common while on temporary release from prison. Regardless of cause of death, the use of illicit drugs at the time of death appeared to be a major contributory factor when compared with unnatural deaths in a community sample.	Ireland

*Ruiz, G., Wangmo, T., Mutzenberg, P., et al. (2014) Understanding death in custody: a case for a comprehensive definition. *Journal of Bioethical Inquiry*, 11(3), 387-398.	Natural and non-natural causes	Prison environment; corruption; lack of healthcare access	Defining deaths in custody according to the place of death is problematic. This study interviewed experts, who emphasised the link between the detention environment and occurrence of death rather than the actual place of death. Many of these deaths are preventable. Deaths by "natural" causes in the prison environment were due to poor access to healthcare. Poor healthcare further worsens the conditions for ill prisoners. Violent deaths were caused either by altercations between inmates or by institutional violence. Short-term prisons have proportionally high levels of self-inflicted deaths. There are types of prisoners who may be exposed to higher risks of dying from a specific cause, including: prisoners who are at a greater risk of substance abuse and suicide; have prior history of victimisation; are women; and/or are suffering from mental health issues.	International
*Cheliotis, L.K. (2012). Suffering at the hands of the state: Conditions of imprisonment and prisoner health in contemporary Greece. *European Journal of Criminology*, 9(1), 3-22.	Drug overdose; suicide; and 'miscellaneous' ('found dead' and 'no cause of death recorded') causes	Insufficient mental health care provision	The officially recorded incidence of prisoner deaths has risen at a faster pace than imprisonment itself. Drug overdose appears to account for the majority of prisoner deaths. The officially recorded incidence of prisoner deaths, meanwhile, has risen at a faster pace than imprisonment itself. The discrepancy in Greece between the rates of suicide amongst prisoners and in the general population was one of the highest at the time internationally. According to the latest report by the Council of Europe, the rate of prisoner suicides in Greece is substantially lower than the international average, but again, unlike most of its international counterparts, Greece failed to provide data on prisoner suicides during hospitalization or temporary release. Crucially, earlier evidence suggests that the overwhelming majority of prisoner suicides in Greece are recorded in the psychiatric clinic of the prison complex of Korydallos, suggesting that mental healthcare provision is insufficient.	Greece
*Sattar, G., & Killias, M. (2005). The death of offenders in Switzerland. *European Journal of Criminology*, 2(3), 317-340.	Natural causes; illness/disease; suicide; overdose; road traffic accident; other accident; killed at the scene of a crime; killed by another inmate; and AIDS	Prison category; prison sentence; age; and nationality	Prisoner death categories comprised: 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. Included in the data were convicted prisoners who died outside prison establishments, e.g. while they were on home leave or during attempted escapes. Death data on prisoners who died during pre-trial detention is not collected at central government level. The number of convicted adult prisoners who died between 1984 and 2000 was 266. The most common causes of death were: illness/disease and other natural causes (34.6%), drug overdose (28.6%), and suicide (28.2%), road traffic and other accident (5.3%, homicide (3.4%). A large proportion of the prisoners who died were male (n = 250, 94%). Sixteen female prisoners died, seven from natural causes and nine from a drug overdose. Over two-thirds (69.2%) of the 266 prisoners who died were Swiss nationals. A larger proportion of foreigners than of Swiss nationals died from natural causes and homicide/other violence whereas a larger proportion of Swiss nationals' than of foreigners' deaths were due to suicide and drug overdoses. The mean age at death was 33.5 years. The 25 to 34-year-olds accounted for almost half of all deaths (45.5%) and for the largest proportion of all types of deaths. Unnatural or violent forms of death are more common among younger offenders whereas natural deaths are more common among older offenders.	Switzerland
Bird, S. M. (2020). Fatal accident inquiries into 83 deaths in Scottish prison custody: 2010-2013. *BJPsych Open*, 6(6), 1.	Self-inflicted (defined as suicide or undetermined intent)	No contributing factors noted	Historically, rates of suicide in Scotland, and in Scottish prison custody, have been higher than the corresponding rates in England and Wales. Of 97 deaths in Scottish prison custody in 1999–2003, 54 were self-inflicted. The proportion of deaths in Scottish prison custody that were self-inflicted reduced from 54/97 (56%) in 1999–2003 to 36/83 (43%) in 2010–2013. The self-inflicted death rate was 1.1 per 1000 prisoner, higher than for prisoners in England and Wales in 2010–2012, but consistent with the provisional rate in England and Wales of 1.0 per 1000 prisoner-years in 2013–2015.	Scotland

Graham, L., Fischbacher, C., Stockton, D., Fraser, A., Fleming, M., & Grieg, K. (2011). Prisoner mortality in Scotland 1996-2007: Retrospective cohort study. *Journal of Epidemiology and Community Health,* 65, 2-101.	Specific causes not provided. The paper focuses on mortality rates among ex-prisoners	No contributing factors noted	The focus of this paper is on mortality rates among people who have been imprisoned (at some point). The study found that people who have been imprisoned in Scotland experience substantial excess mortality that is only partly explained by their levels of deprivation. The association of increased mortality with multiple shorter periods in prison and the concentration of deaths in the early period after prison discharge have substantial implications for policy and practice.	Scotland
Liu, Y. E., Everton, F. L., Cavalheiro, C. Gonçalves, M, et al. (2021). All-cause and cause-specific mortality during and following incarceration in Brazil: A retrospective cohort study. *PLoS Medicine,* 18(9).	Violence; suicide; and communicable diseases	No contributing factors noted	This study linked incarceration and mortality databases for the Brazilian state of Mato Grosso do Sul to obtain a retrospective cohort of 114,751 individuals with recent incarceration. Between January 1, 2009, and December 31, 2018, the study identified 3,127 deaths of individuals with recent incarceration (705 in detention and 2,422 following release). The authors analysed age- standardized, all-cause, and cause-specific mortality rates among individuals detained in different facility types and following release, compared to non-incarcerated residents. Deaths in custody were 2.2 times the number reported by the national prison administration (n = 317). Incarcerated men and boys experienced elevated mortality, compared with the non-incarcerated population, due to increased risk of death from violence, suicide, and communicable diseases, with the highest standardized incidence rate ratio (IRR) in semi-open prisons, police stations, and youth detention. Incarcerated women experienced increased mortality from suicide and communicable diseases.	Brazil
Egorov, A. I., & Naumova, E. N. (2005). Morality in Russian penitentiaries and the general population. *Journal of Public Health Policy*, 26(1), 69-74.	Specific causes not provided.	No contributing factors noted	This paper discusses rates of prisoner death in other countries and highlights that Russian prisoners have lower death rates than general Russian population where homicide rates and suicide rates are one of the highest in world. Cause-specific data on Russian prisoner mortality is not available. The relatively low suicide rates and violent prison deaths in Russian prisons merits further investigation.	Russia
Fox, A. D., Moore, A., Binswanger, I. A., et al. (2019). Deaths in custody and following release. *Journal of Health and Human Services Administration*, 41(4), 45-84.	Suicide; cancer; liver failure; overdose; respiratory and heart disease	Sentence type; prison category; and an aging population	Death in prison in 2014 totalled 3,927 deaths (275 per 100,000) in state and federal prisons. Most common cause of death was chronic health conditions (30% cancer, 26% heart disease - cancer surpassed heart conditions in 2008) due to an aging prison population. Liver disease especially stemming from chronic Hepatitis C accounted for 10% of deaths. Suicide in prison 7% v jail 35% and overdose in prison was 1% v 9% in jails. Race may also play factor.	USA
Crissman, B. (2019). Deaths of people with serious mental disorder: An exploration of deaths in custody and fatal police contacts. Australian Journal of Social Issues, 54(3), 245-266.	Suicide	Inadequate healthcare: access to medication and records; medication compliance)	People with serious mental disorders (PSMDs) are overrepresented both in prison deaths. 27% of deaths in custody (police and prison) between 1989-2011 were PSMDs. According to the Australian Deaths in Custody monitoring report, PSMDs comprised 27% of the 1,105 deaths in custody. Analysis of Coroners reports of incarcerated PSMDs deaths (n=20) in this research show cause of death as: suicide n=13, natural n=6, injuries n=1 medical condition n=6. 8/13 suicide deaths occurred during remand, and five post sentence. 11 occurred in prison cell and 2 in the medical ward. Main themes of suicide in coroners reports were: inappropriate accommodation of at risk prisoners; poor practices of risk assessment; lack of staff access to relevant information.	Queensland, Australia

Chavez, E. (2016). My brother's keeper: Mass death in the carceral state. *Social Justice*, 43(2), 21-36.	Natural causes: cancer; heart; and liver disease	Mass incarceration and privatised prison healthcare	Drawing upon secondary data, the author constructs cases studies of California's prison cemeteries and the prison hospice in Louisiana to highlight "mass death" in prison. The rapid increase in the long-term incarceration of racialized and poor populations has led to a dramatic increase in the number of elderly and terminally-ill who perish behind bars. Natural causes including cancer, heart and liver disease, were the three leading causes of death in a "geriatric prison population". Mass incarceration combined with the privatisation of prison healthcare has led to needless and preventable deaths, widespread practices of medical neglect - these deaths are often passed off as natural causes - the prison system exonerates itself of responsibility in orchestrating death.	USA
Barit, S., du Toit-Prinsloo, L., & Saayman, G. (2020). A persistent problem in Pretoria, South Africa. SA Crime Quarterly, (69), 2.	Cardiovascular; ischaemic heart disease; pulmonary tuberculous	No contributing factors presented	Retrospective descriptive case audit of all deaths (n=93) as a result of police action, police custody and deaths in correctional service (n=17). Thirteen died in prison and four died in hospitals and clinics administered by DCS (Dept Correctional Services). Furthermore the study highlights that these cases are perhaps sub-optimally investigated from a medico-legal perspective, with relatively poor interagency collaboration and that closer attention may be paid to standardised approaches as prescribed in documents such as the Minnesota Protocol. The authors propose that efforts be made to introduce measures to ensure a more systematic and protocol driven review all such deaths. The paper argues that there is a need for objective, impartial and competent medico-legal investigation into deaths of this nature.	Pretoria, South Africa
Bosworth, R,, Borschmann, R., Altice, F., et al. (2022). HIV/AIDS, Hepatitis and Tuberculosis-related mortality among incarcerated people: A global scoping review. *International Journal of Prisoner Health*, 18(1), 66-82.	HIV/AIDS; TB; Hepatitis B; and Hepatitis C	No contributing factors noted	The authors identified 78 publications drawn from seven Joint United Nations Programme on HIV/AIDS regions encompassing 33 countries and reporting on 6,568 deaths in prison over a 20-year period. HIV/AIDS (n = 3,305) was associated with the highest number of deaths, followed by Tuberculosis (TB) (n = 2,892), Hepatitis C (n = 189), HIV/TB (n = 173) and Hepatitis B (n = 9). Due to the limitations of the available published data, it was not possible to meta-analyse or in any other way synthesis the available evidence.	International
Désesquelles, A., Kensey, A., & Meslé, F. (2019). Circumstances and causes of death among prisoners in France: The preponderance of violent deaths. *Population*, 73(4), 721-750.	Violence; suicide; overdose/poisoning; homicide; cell arson; cardiovascular disease; cancer; various chronic or acute diseases	Age; poor access to healthcare; medical history; risk behaviours; severe mental health issues; poor state of health; education attainment; sentence duration: primary offence; penal status.	The report states that 1/2 of all prisoner deaths are attributable to other violent causes (accident, homicide) or to natural causes, and the other half are attributable to suicide. Prisoners aged under 50 have a higher mortality rate than general population, and prisoners aged between 20 and 39 have a mortality over two times higher than community. Having been a prisoner for only a short time is strongly associated with excess mortality due to violent causes. At time of death, 17% of those who died due to violent causes (19% for suicides, 15% for other violent deaths vs 1% of the "active population") had been prisoners for less than one month. Conversely, for a given age group, long stays in prison are associated with a higher risk of dying of natural causes. One-third of individuals who died of natural causes had been prisoners for at least five years. Those incarcerated for homicide have a higher risk of dying, whether due to natural causes or violence, than those imprisoned for theft. One-third of those who died of natural causes and one-quarter of those who died due to violence were imprisoned for homicide. There is also excess mortality among rapists, but it is only significant for violent deaths, particularly for suicides: one-quarter of suicide deaths involve rapists. Pretrial detainees have an advantage in terms of natural-cause mortality but are at a heavy disadvantage in terms of violent causes. Almost half of those who committed suicide were awaiting trial. One-third of convicted prisoners who died in 2011 were serving at least a ten-year sentence. Poor access to healthcare is an issue.	France

Favril, L., Wittouck, C., Audenaert, K., & Vander Laenen, F. (2019). A 17-year national study of prison suicides in Belgium. *The Journal of Crisis Intervention and Suicide Prevention,* 40(1), 42-53.	Suicide: hanging; jumping; poisoning; overdose	Solitary confinement, single cell occupancy, inadequate screening, first time entry, lack of support and care	Suicides accounted for 1/3 of all prison deaths. Prison death figures in 2016: 53 deaths, of which 13 were suicide. 1/2 prison suicide during first ever episode of imprisonment and 47.5% prior history of incarceration. 7.6% in first 24 hours and 1/5 suicides during first month. 60.6% in single cell, 11.2% in solitary confinement. Hanging or self-strangulation most common. Suicide screening should not be limited to initial point of entry but ongoing. There is a need for social support by trained staff. 40% of prisoners who took their own life were subject to increased monitoring which highlights that mere isolation and monitoring does not suffice. A holistic whole prison approach to suicide prevention required including: appropriate mental health care, peer support, screening and staff training, suicide awareness and multi-disciplinary care and support. Individual (psychiatric disorders and history of suicide attempt) and situational (early period of incarceration, inter-facility transfer, solitary confinement) are factors amenable to (clinical) management.	Belgium
Graham, L., Fischbacher, C., Stockton, D., et al. (2015). Understanding extreme mortality among prisoners: A national cohort study in Scotland using data linkage. *European Journal of Public Health*, 25(5), 879.	Specific causes not provided	No contributing factors noted	This article focuses on mortality rates of individuals who have served a prison sentence, post-sentence mortality. Individuals who have been imprisoned experience substantial excess mortality than non-imprisoned citizens.	n/a
Imperial, J. C. (2010). Chronic Hepatitis C in the state prison system: Insights into the problems and possible solutions. *Expert Review of Gastroenterology & Hepatology*, 4(3), 355-64.	Chronic Liver disease	Health care provision and access	Between 1989 and 2003, chronic liver disease-related death rates among male Texas patient-inmates increased, particularly among Hispanics. Among Texas prisoners, death from chronic liver disease accounted for 16% of the total prison deaths. Prisoners' potential parole date, which may not allow enough time to complete treatment, failure to meet approved treatment guidelines owing to ongoing drug or alcohol use, refusal to undergo an indicated liver biopsy, other medical or psychiatric conditions and inadequate numbers of medical and nursing personnel may be factors. Few institutions throughout the country have established educational programs or support groups to encourage adherence to therapy. The scarcity of electronic medical records as well as insufficient care coordinators are the rule rather than the exception. Difficult physical conditions; requirements for safe transport of patient-inmates to medical appointments, all make treatment a formidable task.	Texas
Jedidi, M., Mlayeh, S., Mahjoub, M., Mezgar, Z. et al. (2018). Death in detention in Sousse, Tunisia: A 10-year autopsy study. *Egyptian Journal of Forensic Sciences*, 8(1).	Natural causes: cancer; infections. Unnatural: violence; suicide (hanging); and homicide. Accidental	Poor prison health provision and availability; prison staff inadequately trained on suicidal crises; access to ligature points	This study examined the peculiarities of death among individuals detained in the region of Sousse in Tunisia and suggests preventive measures. 26 deaths occurred in Messadine prison, Tunisia, during a 10-year period 2006 to 2015. All the victims were males. The mean age was 39.5 years. 42.3% of the deaths occurred inside the prison and 57.7% in a hospital. The deaths were of natural causes in 69.2%. The most common natural causes were cancer and infections. Violent death (suicide and homicide) accounted for 31.8%. This study shows that a large proportion of deaths among prisoners are preventable. Prevention is achieved through health care coverage, training prison staff on the identification of suicidal crises, and on controlling the technical devices facilitating the transition to the suicidal act. The relatively low number of deaths can largely be explained by the common practice of sentence suspension for medical reasons for terminally-ill prisoners according to their disease evolution.	Tunisia

Opitz-Welke, A., Bennefeld-Kersten, K., Konrad, N., & Welke, J. (2013). Prison suicides in Germany from 2000 to 2011. International Journal of Law and Psychiatry, 36(5-6), 386-389.	Suicide	Occupation density/overcrowding; sentence category; offence type; day of the week; inadequate access to psychiatric care	Suicide is the most frequent cause of prison deaths and national penal suicide rates are consistently several times higher than in the general population. An assessment of all suicides in German prisons was carried out from 2000 to 2011. The mean rate per year of prison suicides in Germany from 2000 to 2011 was 105.8 per 100,000 male inmates and 54.7 per 100,000 female inmates. Male prisoner suicide rates significantly declined during the period under investigation. No significant trend was evident for female prisoners in pre-trial detention but a noteworthy increase was apparent in female sentenced prisoners. A significant positive relationship can be demonstrated between occupation density and the suicide rate for both men and women. Higher suicide rates among pre-trial detainees than among sentenced prisoners reveal that situational variables must also be taken into account. It has been demonstrated that indictment for a serious crime and solitary confinement increase the risk of committing suicide. During the study period, the suicide rates of pre-trial male and female prisoners were usually substantially higher than those of the sentenced prisoners. Among pre-trial detainees, those accused of sexual offenses and homicides had significantly higher suicide rates than prisoners accused of other offenses. Overcrowding must be discussed as an independent risk factor for prison suicide. Overcrowding leads to a reduced access to resources for prisoners.	Germany
Pounder, D. J. (1986). Death behind bars: An 11-year survey of prisoner deaths in South Australia. *Medicine, Science, and the Law,* 26(3), 207-213.	Accidental; suicide (hanging, drug overdose, leaping from a height); ischaemic heart disease; and malignancy	Inadequate care: delays in critical response to medical emergencies.	Death from whatever cause, of a person lawfully detained in an institution of the South Australian Department of Correctional Services, whether on remand or sentenced and including deaths after transfer to other institutions such as hospitals, and deaths in small rural police prisons over an 11-year period (1973-83) were included in this study. Over the 11 years there were 31 deaths involving male prisoners. There were no female fatalities and no homicides. Post-mortem examinations were performed in all cases. Two deaths were accidental. There were ten suicides. The mean age was 24 years (range 20 to 28 years). In two of the suicides there were allegations of sexual abuse of the deceased by other prisoners. Two were known drug abusers, two were on remand, one had a history of depression and one was a chronic schizophrenic. Inquests were held in all but one case. Nineteen deaths (61 per cent) were from natural causes, including seven from ischaemic heart disease and three from malignancy. Of the 19 natural deaths, 10 were sudden deaths, and it is in relation to some of these that allegations of inadequate care arose. The critical problem with prison responses to these medical emergencies is that they are subject to delay as a consequence of security policy .	South Australia
Ram, U., & Kumar, P. (2021). Incarcerated population in India: How many are dying? how are they dying? International *Journal of Prisoner Health,* 17(2), 171-186.	Unnatural: suicide; illness. Natural: heart disease	Deteriorating living environment; mental illnesses	During 1998–2018, the prison population in India grew by 69%, leading to overcrowded jails. In 2018, over 14 per 1,000 prisoners suffered from a mental illness and 384 per 100,000 died. Unnatural deaths accounted for 8%–11% of all prisoner deaths; 84% were by suicide. Illness accounted for 95% of all natural deaths in 2018; one–quarter due to heart disease. The pattern of a deteriorating living environment, rise in mental illnesses and mortality among Indian prisoners calls for immediate action from the authorities to protect them.	India

Smith, R. (1984). The state of the prisons. Deaths in prison. *British Medical Journal,* 288(6412), 208.	Suicide; self-inflicted death (SID); hunger strike	Jurisdiction e.g. in Northern Ireland there are high levels of the use of hunger strike; and poor environmental conditions.	Every year about 50 to 70 people die while they are prisoners in England and Wales. About 20 prisoners die in NHS hospitals; between 10 and 20 die by their own hand; up to 10 die of other unnatural causes; and most of the rest die in the prison hospital. Prisoners are most likely to kill themselves in the first month in prison. The suicide rate was eight times higher among those sentenced to 18 months or more, and they were most likely to kill themselves at the beginning of their sentences. Nearly two fifths of the prisoners who killed themselves had psychiatric treatment. One method of suicide is hunger strike. The problem has been particularly severe in Northern Ireland, where hunger striking has long been a traditional form of protest. Ten prisoners died in a hunger strike in the Maze prison in 1980 and 1981. In addition to the 17 deaths due to suicide in English and Welsh prisons in 1982, another 44 prisoners died, 13 of them from non-natural causes. Three died from fires in their cells, four from hanging, two from drug overdoses, one from an accident with a tractor, and three from other causes.	England, Wales, and Northern Ireland
Spaulding, A., Sharma, A., Messina, L., et al. (2015). A comparison of liver disease mortality with HIV and overdose mortality among Georgia prisoners and releasees. *American Journal of Public Health*, 105(5), E51-E57.	Liver disease; HIV; and overdose	No contributing factors noted	The study focuses on post release mortality rates v prison mortality rates. It is a comparison of liver disease mortality with HIV and overdose mortality among Georgia prisoners and releasees: a 2-decade cohort study of prisoners incarcerated in 1991.	n/a
Specter, D. (2010). Everything revolves around overcrowding: The state of California's prisons. *Federal Sentencing Reporter*, 22(3), 194-199.	Infectious diseases; violence; overcrowding	Inadequate health care; and overcrowding	Basic medical and mental health care for prisoners have been lacking for decades, and have become less available as the prison population has swelled. Overcrowding in California's prison system "has caused substantial risk to the health and safety of the men and women who work inside these prisons and the inmates housed in them," making prisons places of "extreme peril to the safety of persons". Overcrowding creates "an increased, substantial risk of violence" and "an increased substantial risk for transmission of infectious illnesses," and "tight quarters create line-of-sight problems for correctional officers by blocking views, creating an increased, substantial security risk." Immediate action is necessary to prevent death and harm caused by California's severe prison overcrowding.	USA
Ünal, V., Ünal, E.Ö., Çetinkaya, Z., İmalı, M., et al. (2016) Custody and prison deaths autopsied in Istanbul between 2010 and 2012. *Journal of Forensic and Legal Medicine,* 39, 16-21.	Cardiovascular diseases; cancer; infections; hanging; intoxication; burning; stabbing	Inadequate healthcare provision	A total of 125 death in custody autopsy cases were obtained for the study. The purpose of the study was to describe the causes of deaths of those who died in prison, police custody cells or hospitals who were autopsied in Istanbul, Turkey. Natural deaths accounted for 83.2% of all deaths. The most common natural cause was cardiovascular disease. Unnatural deaths accounted for 15.2% of the deaths. More than half of the cases (56%) died at the hospital, 34.4% died at the prison, 4% of them at the police van, 3.2% died in police custody and 2.4% died in the prison medical room. Of the 43 that died in prison, 30 died from natural causes (cardiovascular diseases, hanging, cancer, infections, multisystemic diseases) and 13 from unnatural causes (intoxication, burning, stabbing).	Istanbul, Turkey
Yang, H., & Thompson, J. R. (2020). Fighting Covid-19 outbreaks in prisons. *British Medical Journal (Online)*, 369.	Infectious diseases: Hepatitis C; HIV; and TB	Overcrowding; inadequate healthcare and health education	Infectious diseases account for around 17.5% of prison deaths in China. The tuberculosis infection rate in prisons of about 1250 cases per 100 000 is 3.4 times China's national average. Highly infectious prison environments are fuelled by overcrowding, poor health services, high risk behaviours, security versus public health concerns, and lack of empathy for prisoners.	China

Sailas, E. S., Feodoroff, B., Lindberg, N. C., Virkkunen, M. E., et al. (2006). The mortality of young offenders sentenced to prison and its association with psychiatric disorders: A register study. *European Journal of Public Health,* 16(2), 193-7.	Psychiatric disorders; suicide; homicide	No contributing factors noted	This study analysis mortality rates of a population that served a prison sentence as a young offender. The study sample consisted of 3832 adolescents and included 89 (2.3%) girls. The sample included practically all prisoners of Finnish citizenship aged 15–21 years during the period 1984–2000. Of the whole study group, 435 (11.4%) had died by the end of the follow-up period, including 3 girls. The median age at death was 26.6 years. The causes of death were mostly psychiatric disorders. In 217 cases—that is, in the case of almost half the deaths—death occurred while under the influence of alcohol (43.3%), drugs (25.8%), or both (30.9%). Over half of the accidental deaths were due to drug or alcohol intoxication. Most of the homicides resulted from knife stabbings. In 4 of the 36 cases that were labelled as natural, the person died of cancers typical of this age range, and 14 were deaths from respiratory infections and liver and pancreas diseases. Of all the young prisoners, 2077 (54.2%) had undergone psychiatric hospital treatment before, after, or during their prison sentences.	Finland
Scraton, P., & McCulloch, J. (2006). Introduction: Deaths in custody and detention. *Social Justice,* 33(4), 1-14.	Specific causes not listed	No contributing factors noted	This paper provides an overview of deaths in custody and detention using specific (inter)national examples. No relevant data on causes of death or contributing factors was provided.	n/a
Wobeser, W. L., Datema, J., Bechard, B., & Ford, P. (2002). Causes of death among people in custody in Ontario, 1990-1999. *Canadian Medical Association Journal,* 167(10), 1109-13.	Violence; suicide; homicide; cancer; cardio-vascular disease	Age: prisoners in their 20's and 30's have a high rate of death by cardiovascular disease	A review of all deaths in police custody, federal penitentiaries (prisoners sentenced to 2 years or more) and provincial prisons (prisoners sentenced to less than 2 years) in Ontario during 1990-1999 discusses causes of mortality including: natural and non-natural.	Ontario, Canada
Whyte, A. (2017). Being behind there bars. *Nursing Standard,* 31(22), 18.	Suicide	Poor healthcare; healthcare staff shortages; first night risk factor	This article on HMP Wandsworth, written by a prison nurse, outlines poor access to healthcare due to staffing shortages that prevent prisoners being escorted to appointments; healthcare staff shortages (50%); and the first night risk factor.	HMP Wandsworth, England
Visser, R. C. (2021). Dying in the margins: A literature review on end of life in English prisons. *Religions*, 12(6), 413.	Suicide; old age; Covid-19	Healthcare provision; lack of palliative care training for prison staff	This literature review provides an overview on current scholarship around dying in prison in English context. Four types of dying are discussed in this paper: (1) suicide; (2) dying in older age; (3) deaths post-release; and (4) Covid-19 deaths. These four "types" only begin to scratch the surface of how loss, death, and dying are inherent within custodial environments.	England and Wales
Themeli, O. (2006). Suicide in the Greek penal system and the problem of various limitations in relevant studies. *The Journal of Crisis Intervention and Suicide Prevention*, 27(3), 135-139.	Suicide; accidental; unspecified	No contributing factors noted	The number of "unnatural deaths" in Greek prisons is very high and the research suggests that the mis-classification of some suicides as "accidental" or "unspecified" deaths may falsify the actual suicide rate. Many self-inflicted deaths are not reported or that other causes for death are given – not suicide. In many instances the real cause of death is not recorded - inmate "was found dead" or "transferred dead". Quite often prisoners are pronounced dead in the hospital (outside the prison) where they are immediately transferred after committing suicide in their cells. In that case the hospital is reported as the place of death and the cause of death seems to be unknown and the incident is not officially classified by the prison system.	Greece

Dooley, E. (1990). Prison suicide in England and Wales, 1972–87. *The British Journal of Psychiatry,* 156(1), 40-45.	Suicide	Age; sentence and offence type; martial and housing status; psychiatric history; staff/prisoner relations; cell design	The case notes of 295 suicides (98.3% of the total) in prisons in England and Wales between 1972 and 1987 were studied. This period witnessed an increase in the suicide rate far in excess of the rate of rise in the prison population. The most common method of suicide was by hanging, usually at night. There was a frequent past history of psychiatric treatment and self-injury. People charged or convicted of violent or sexual offences were over-represented, as were those serving life sentences. There was an association between suicide and being charged or convicted of a homicide offence. Sixty three (21.4%) of the suicides were married at the time of death, 158 (53.6%) had never been married, 58 (19.6%) were separated, divorced or widowed, 13 (4.4%) had killed their spouse, and in three cases (1.0%) the marital status was not recorded. Fifty-one (17.3%) of the suicides occurred within one week of reception into prison, 84 (28.5%) within a month, 151 (51.2%) within three months, and 227 (76.9%) within a year of reception into prison. A significantly disproportionate number of those who killed themselves did so while on remand.	England and Wales
Cunneen, C. (2006). Aboriginal deaths in custody: A continuing systematic abuse. *Social Justice,* 33(4), 37-51.	Suicide	Failure to offer proper care to indigenous prisoners	In New Zealand the Māori population make up 14% of general population but 51% of the prison population, and in Canada the Aboriginal population makes up 3% of general population but 17% of federal penitentiary population. Aboriginality of the person was a significant factor, and in some cases the dominant one, leading to the person's placement and eventual death in custody (including prison). Indigenous prison death rate is slightly higher than non-indigenous. There is a lack of cultural understanding; lack of awareness concerning treatment of indigenous and non-indigenous prisoners; poor cell design (ligature points); negligence, lack of care and breach of instructions on the part of custodial authorities.	New Zealand and Canada
Balfour, G. (2017). It's your job to save me: The union of Canadian Correctional Officers and the death of Ashley Smith. *Canadian Journal of Law and Society*, 32(2), 209-228.	Suicide and self-inflicted strangulation	Conditions of confinement; lack of mental health care provision; segregation	The death of 19 year old Ashley Smith (female) in 2007 whilst being held inside a segregation cell on suicide watch in Canada was by self-inflicted strangulation. Three correctional officers were charged and suspended. The Office of the Correctional Investigator (OCI) issued a report in 2008 entitled 'A Preventable Death' . In that report several individual and systemic failures that led to her death were identified. The OCI's text focuses on the systemic disregard for the deterioration of Ashley Smith's well-being while she was held in long-term segregation under the most coercive conditions. The OCI called for adherence to the legislative framework in the use of administrative segregation and placed a greater emphasis on oversight and adherence to the inmate grievance process. The Correctional Investigator points to the failure of law to protect Ashley Smith's rights while incarcerated.	Canada
Aday, R., & Wahidin, A. (2016). Older prisoners' experiences of death, dying and grief behind bars. *The Howard Journal of Crime and Justice,* 55(3), 312-327.	Natural causes: cancer; heart disease; and respiratory diseases	Age; 'accelerated ageing'; and penal harm practices such as delaying or denying medical treatment.	This paper presents a brief overview of the rising age of the prison population, and causes of natural death and rates. Between 2013 and 2014, natural deaths in prison rose by 7% from the previous year, while 58% of individuals who died in prison were aged 60 or over, emphasising the increased older prison population. The majority of the 3,370 deaths in United States of America (USA) prisons in 2012 can be attributed to natural causes. There is significant growth in the numbers of elderly people dying behind bars. In 2001, 34% (971) of prisoners who died were aged 55 years or older, and by 2011 that figure had increased (1,770) to 53%. Across this time span, elderly prisoners account for more than half of the prison population who have died from cancer (54%), heart disease (51%), and respiratory diseases (53%). Those in the 45–54 years age category comprised 28% of prisoner deaths in 2011. Penal harm practices, such as delaying or denying medical treatment, continue to occur in many prison systems.	United Kingdom and USA

Bobrik, A., Danishevski, K., Eroshina, K., & McKee, M. (2005). Prison health in Russia: The larger picture. *Journal of Public Health Policy,* 26(1), 30-59.	Infectious diseases: tuberculosis; cardiovascular diseases; and external causes	Considerable overcrowding; poor ventilation; poor quality health care system due to long term underfunding.	Although convicts are drawn disproportionately from disadvantaged groups in society and are detained in adverse physical conditions, the standardised mortality ratio from all causes is slightly over one-third of that in the overall Russian male population. This is mainly explained by an eight-fold lower mortality from external causes and a more than two-fold lower mortality from cardiovascular disease. These far outweigh the increased mortality from infectious diseases. Poor sanitary and living conditions, and overcrowding is prevalent. Between 1991, the last year of the USSR, and 1997, crude death rate among convicts in Russian penitentiaries (all ages) rose more than two-fold, subsequently recovering through 2002. Deaths from infectious diseases and in particular Tuberculosis, which by 1997 accounted for 49.2% of prison deaths, and cardiovascular diseases, which accounted for 18.2.% of all deaths in the same year. The steady decline in death rates since 1997 is due almost entirely to the reduction by approximately 90% in deaths from Tuberculosis.	Russia
Bradshaw, E. A. (2021). Do prisoners' lives matter? examining the intersection of punitive policies, racial disparities and Covid-19 as State organised race crime. *State Crime*, 10(1), 16-44,189.	Covid-19	Age; race; overcrowding; poor conditions; lack of preventive and therapeutic services; poor healthcare screening.	Correctional facilities face particular challenges in controlling the spread of highly infectious pathogens like Covid-19 such as "crowded dormitories, shared lavatories, limited medical and isolation resources, daily entry and exit of staff members and visitors, continual introduction of newly incarcerated or detained persons, and transport of incarcerated or detained persons in multi-person vehicles for court-related, medical, or security reasons". Overcrowded conditions of confinement that are commonplace across U.S. prisons and jails make it impossible to abide by the social distancing guidelines. "Jails are petri dishes". By June 6, 2020, there had been 42,107 cases of Covid-19 and 510 deaths among 1,295,285 prisoners with a case rate of 3,251 per 100,000 prisoners. Mirroring the racial disparities of the prison population more broadly, nearly half of the total prisoner deaths from Covid-19 were people of colour. Furthermore, most deaths occurred among prisoners over age 50.	Michigan, USA
Harzke, A. J., Baillargeon, J., Paar, D. P., Pulvino, J., et al. (2009). Chronic liver disease mortality among male prison inmates in Texas, 1989-2003. *The American Journal of Gastroenterology,* 104(6), 1412-1419.	Chronic liver disease; Hepatitis B, and Hepatitis C	Inadequate healthcare; lack of preventive and therapeutic services; and race	From 1989 to 2003, Chronic Liver Disease (CLD) related death rates among male Texas prisoners were high and increased over time, particularly among Hispanics. Targeted prevention, screening, and treatment of CLD risk factors, especially Hepatitis C, and early detection and treatment of CLD should be considered as priorities of the USA prison healthcare systems. Over the entire study period, CLD-related deaths accounted for 16 % of prisoner deaths (688 / 4,316). The largest proportion of CLD-related deaths was among Hispanic prisoners (41%), followed by white prisoners (34%) and black prisoners (25%). CLD-related deaths accounted for an increasing proportion of deaths over time, from 10 % during 1989 – 1993 (72 / 693) to 19 % (260 / 1994) during 1999 – 2003.	Texas, USA
Shifan, W., Ren, L., Meichen, P., et al. (2020). Retrospective analysis of 172 cases of custodial deaths in China between 1999 and 2016: Forensic experience in China. *International Journal of Legal Medicine,* 134(4), 1487-1493.	Natural: suicide; undetermined; accident	Lack of medical and healthcare provision	Natural deaths accounted for the majority of deaths in custody (70.93%), followed by suicide (16.28%), accidents (3.49%), homicides (4.65%), and undetermined causes (4.65%). The most common natural cause was cardiovascular disease. Custodial deaths occurred more frequently in prisons and detention houses than in police cells (63%, 63%, and 46%, respectively). The average age across cases was 36.3 years, and 90% of the deceased were aged under 50 years. This study examined 172 cases of custodial deaths, the manner of death, cause of death, and changes in China's policy on prisons during this period. There are no official data on custodial death in China to date but the study categorised the causes of death: natural, suicide, homicide, accident, or undetermined. The paper argues for the professionalization of medical and health care in prison to ensure timely and effective treatment of detainees.	China

Thematic analysis

The Excel 'categorised bibliography' database was then thematically analysed. An inductive thematic analysis approach was adopted whereby 'the analysis is located within, and coding and theme development are driven, by the data content', and which 'capture[s] truth and reality, as expressed within the dataset' (Braun and Clarke, 2022: 10). The literature review was not restricted to prisoner deaths only, hence the keyword search terms were 'prison* death*' and 'prison* death' to incorporate all deaths in prison, whether e.g. babies, visitors or staff. Nevertheless, the literature database search did not return any literature or data on prison staff or other prison stakeholder deaths, which highlighted an area 'where little or no relevant research has been done' (Petticrew and Roberts, 2006: 2).

Themes

Emerging themes included: i) causes of death; ii) contributory factors to prisoner death; iii) misclassification and recording issues.

Whilst outside of the remit of this review, several papers highlighted the salient issue of post-release mortality. Authors reported that regardless of the type or length of custodial sentence, mortality rates were higher for individuals who have been incarcerated at some point in their life.

Causes of death

Causes of death appeared to be stratified into two distinct fields – 'natural' and non-natural deaths. Deaths by 'natural causes' included prisoners dying from communicable/infectious diseases e.g. AIDS, Hepatitis C; COVID 19 and Tuberculosis. Other 'natural deaths' included cancer, liver failure, heart disease, respiratory disease, Chronic liver disease, cardiovascular and pulmonary diseases such as ischaemic heart disease and pulmonary tuberculous; and sudden natural deaths. Non-natural deaths included: violent deaths (prisoner on prisoner altercation and institutional violence e.g., restraint, use of force; positional asphyxia following restraint; stabbing; burning; blunt force trauma; cell arson as an act of protest or suicidal act; unspecified violent causes); death by homicide; suffocation; suicide; self-inflicted deaths (defined as suicide or undetermined intent); intoxication (including drug overdose; alcohol poisoning; drug poisoning); hunger strike; and accidental death.

Table 3 below provides the full list of 'causes of death' cited within the literature review.

Table 3: Causes of death

	Causes of death
1	Suffocation
2	Suicide; self-inflicted deaths (defined as suicide or undetermined intent); suicide by people with serious mental disorders; suicide by self-inflicted strangulation; hanging; poisoning; overdose; jumping; burning; cell arson as act of protest or suicidal act
3	Homicide (including prisoner by another prisoner cell-sharing)
4	Communicable diseases including AIDS hepatitis C; COVID 19; HIV; and Tuberculosis
5	Unnatural death
6	Natural death - illness/disease including cancer, liver failure, heart disease, respiratory disease, Chronic liver disease, Hepatitis B; cardiovascular and pulmonary diseases such as ischaemic heart disease and pulmonary Tuberculous; sudden natural death
7	Accidental death
8	Violent death - prisoner on prisoner altercation; institutional violence e.g., restraint, use of force); positional asphyxia following restraint; stabbing; burning; blunt force trauma; cell arson (as an act of protest or suicidal act); and unspecified violent causes
9	Non-violent
10	Hyperthermia
11	Attempted escape
12	Misadventure
13	Open verdicts; undetermined; 'found dead'; 'no cause of death recorded'; miscellaneous
14	Road Traffic Accident (whilst released on temporary licence)
15	Intoxication; drug overdose; alcohol poisoning; drug poisoning
16	Infections
17	External causes
18	Multisystemic diseases
19	Hunger strike
20	Malignancy

Contributory factors

The literature review also identified contributing factors to both natural and unnatural prisoner deaths. These factors fell into three categories: i) the physical environment; ii) sentence specific; and iii) prisoner personal characteristics.

The physical environment

Physical environment factors included: overcrowding; cell type; cell design; inappropriate use of prison as 'place of safety'; mass incarceration; poor conditions; access to health care; health care provision. Authors reported that the physical environment can result in 'accelerated aging' – whereby prisoners aging is accelerated and therefore they are more likely than non-imprisoned citizens to die at a younger age. The type of institution that a prisoner is placed in was also stated to have a negative effect on mortality propensity: short-term/local/ semi-open prisons holding short-term and remand prisoners have higher levels of violent deaths and suicide.

Sentence specific

Scholarship highlighted that the type of sentence can also contribute to prisoner mortality. Prisoners who are on remand, awaiting sentence or who are serving long or life sentences are more likely to take their own lives. Prisoners who have been sentenced for homicide or sexual offences are also more likely to take their own lives or die from violent causes. Prisoners are also being sentenced to longer sentences, resulting in an increasingly ageing prison population.

Prisoner characteristics

Prisoner characteristics included: age, educational attainment; marital status; race; ethnicity; nationality; gender; history of substance abuse; history of mental illness; and housing status.

Authors illustrated that there is an aging prison population and that prisoners are subjected to 'accelerated ageing' due to imprisonment. Furthermore, suicide and violent deaths are reported to be more prevalent among younger male prisoners, as are cardiovascular deaths. Scholarship highlighted that there are relationships between education level and risk of death by violence. Whether a prisoner is married or not is reported to affect the likelihood of a prisoner taking their own life whilst serving their custodial sentence. A prisoner's gender, race, ethnicity and nationality are stated to affect natural and non-natural mortality. Having a history of mental illness and/or substance abuse have also been identified by scholars as contributing to dying in custody.

Table 4 below provides the full list of 'contributing factors' cited within the literature review.

Table 4: Contributing factors

	Contributing factors
1	Overcrowding
2	A serious breakdown in communications between health and social services
3	Inappropriate use of prison as 'place of safety' and paucity of healthcare, inappropriate accommodation of at risk prisoners
4	Appropriate accommodation of at risk prisoners
5	Release on temporary leave/ home leave
6	Penal status: pretrial detainees; life sentences; prisoners being held on remand
7	Type of institution: short-term; local; semi-open prisons; remand; long-term
8	Cell category: solitary confinement, single cells; cell design
9	Health care: inadequate healthcare provision; lack of health care staff; insufficient treatment; substandard care; privatized medical services; hospitalization delays; healthcare neglect; lack of access to health care
10	Age: suicide; violence; 20's and 30's high rate of death by cardiovascular disease; 'accelerated ageing' due to imprisonment; aging prison population
11	Race; ethnicity; nationality
12	Structural violence: use of force and violence. Covid - Hand sanitizer is banned due to its inebriating properties; crowded cells make social distancing impossible; masks, vaccines, and other supplies are hard to attain; complaints to guards about people showing signs of illness often fall on deaf ears
13	Staff/prisoner relations: complaints to guards about people showing signs of illness often fall on deaf ears; transience of population affects development of positive staff and prisoner relations; poor prisoner/staff relations; and poor facilities for communication
14	Gender: women held in male-oriented facilities ill equipped to handle their needs
15	History of drug or alcohol abuse
16	Timepoint of sentence: first 2 months of sentence; first night risk factor

17	First-time entrants
18	Sentence type and length; and the prison category
19	Mental health (history)
20	Prison environment: difficult physical conditions; ligature points; deteriorating living environment; poor ventilation; poor conditions (including shared toilets and lack of cleaning/cleaning products); overcrowding
21	Prison staff: lack of access to background/relevant information, risk assessment/ inadequate screening; prison staff inadequately trained on the identification of suicidal crises; lack of health education; lack of palliative care training for prison officers
22	Mass incarceration
23	Risk behaviours: smoking, alcoholism, or drug abuse
24	Education attainment: level of education was associated with a higher risk of death by violence. Being a non-employee prior to imprisonment, being disabled or belonging to the group of other non-workers all impacted mortality rates
25	Offence type: prisoners who have been sentenced for homicide or sexual offences have a higher risk of dying (natural causes or violence, including suicide)
26	Other signs of a poor state of health (e.g. obesity, "visible deterioration")
27	Day of the week: Sunday and Bank holidays higher suicide figures
28	Jurisdiction: Northern Ireland has higher levels of the use of hunger strike
29	Marital status
30	Housing status: no fixed abode or single occupancy

Misclassification and recording issues

One further important issue that emerged from the literature review is 'misclassification' and recording issues. It is difficult to compare jurisdictional figures due to fundamental problems with the recording and counting of incidences of mortality and the recording and classification of causes of death. Some deaths are simply excluded and not counted as death(s) in custody or are misclassified. In several jurisdictions prisoner deaths were not counted if they occurred outside of the prison i.e. whilst the prisoner was hospitalised, on temporary release, on home leave, or released on compassionate grounds e.g. in Tunisia, terminally ill prisoners are released on compassionate grounds and therefore their deaths are not counted as deaths in custody. The literature review also highlighted that there are jurisdictional disparities as to whether deaths of remand prisoners (those awaiting trial) are counted as deaths in custody e.g. in Switzerland prisoner death data excludes prisoners who have died whilst on remand/awaiting trial. There was also evidence of misclassification of certain death categories, with suicide being under-reported through misclassification i.e. suicides recorded as 'accidental' or 'unspecified'. Scholars also highlighted that a variety of deaths (e.g. heart attack, cancer and drug overdose) are simply recorded under a single category named 'miscellaneous', and a large number of deaths in custody (in Greece) are unambiguously classified as 'found dead' or 'no recorded cause of death'. Concerningly, the literature also illustrated that jurisdictions count and publish varying levels of data on prison death e.g. in China there is no official data on deaths in custody to date, whilst in the USA local jail-by-jail prisoner death data was aggregated to state and national level. Individual jail death data is not available to the public.

Summary

This review has presented the step-by-step process of a systematic database literature review on prisoner deaths that was undertaken from February – April 2022. The results provided have facilitated preliminary identification of gaps in knowledge regarding prison deaths globally. The primary themes that emerged through the inductive thematic analysis stage of the systematic review were controversies around: i) causes of death, ii) contributory factors to prisoner death and iii) misclassification and recording issues. These themes provide a springboard for further analysis and research.

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