

Deaths among people who were homeless at time of death in Ireland, 2019

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Deaths among people who were homeless at time of death in Ireland, 2019

Results of the HRB feasibility study

Ena Lynn, Joan Devin, Sarah Craig, Suzi Lyons

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Glossary of Terms

AED	Anti-epileptic drugs
CI	Confidence Interval
CTL	Central Treatment List
CSO	Central Statistics Office
DRHE	Dublin Regional Homeless Executive
ESP	European Standard Population
GMR	General Mortality Register
HIPE	Hospital In-Patient Enquiry
HRB	Health Research Board
IQR	Interquartile Range
LGBTQI+	Lesbian, Gay, Bisexual, Transgender, Queer and Intersex Persons
NDRDI	National Drug-Related Deaths Index
NHIS	National Health Information Systems
NPIRS	National Psychiatric In-Patient Reporting System
OAT	Opioid Agonist Treatment (e.g., Methadone)
PASS	Pathway Accommodation and Support System
PCRS	Primary Care Reimbursement Scheme
SMR	Standardised Mortality Rate
SUDEP	Sudden Unexpected Death in Epilepsy
UK	United Kingdom
US	United States

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Executive Summary

Purpose of this study

This feasibility study was commissioned by the Department of Health to address the need to improve understanding of premature mortality among people who are homeless nationally, and to provide more complete and accurate national data to inform policy.

Methods

This was a retrospective review of all deaths in persons categorised as homeless at time of death in Ireland in 2019. Data on deaths were extracted from closed coronial files nationwide.

Key findings

Number, demographics, and circumstances of death

There were 84 deaths among people who were homeless included in the study, from a total of 17,822 deaths reported to the coroners during this period¹. This equates to over one death a week (1.6 deaths per week), or 7 deaths per month in 2019. Males accounted for the majority (81.0%) of deaths. The median age at death for males was 40.5 years [IQR 16] and for females 39.5 years [IQR 14], highlighting the burden of premature mortality in the group. The majority of deaths (77.4%) occurred in the Leinster region, with 59.5% occurring in Dublin. A further 7.1% occurred in Cork, with the remainder distributed nationally.

The highest proportion of deaths (40.5%) occurred in a public place, public building, or derelict building, with a further 32.1% dying in emergency homeless accommodation. Eighteen (21.4%) people who died appeared to be rough sleepers, with a further 40 (47.6%) known to be accessing crisis homeless accommodation. Almost all (93%) had a history of substance use with a high level of polydrug use. There was a high proportion of injectors, especially among men, and a high prevalence of hepatitis C in this cohort. A high number of people who died in this cohort had epilepsy relative to the general population.

Almost two fifths (38.1%) of the overall group had a mental health issue, notably higher among women (75.0%). Women were proportionally more likely than men to have a mood disorder and have a history of a previous suicide attempt.

A high proportion of the deceased were in contact with any medical services (39.3%), the majority (69.7%) of whom were in receipt of substance use treatment within the month preceding death. More women (62.5%) than men (33.8%) were in contact with health services.

Cause of death

There were 46 poisoning deaths in total, 37 (80.4%) among men and nine (19.6%) among

women. The most common drug group implicated in poisoning deaths were opioids, followed by benzodiazepines and Z-drugs. Pregabalin was implicated in less than five poisoning deaths.

Almost one quarter (24.3%) of people who died by opioid poisoning had a known history of a previous overdose. Three in ten poisoning deaths involving opioids occurred in a public place (32.4%), with a further four in ten (40.5%) occurring in homeless accommodation. Just over half (51.4%) of the people who died of a poisoning death involving opioids were not alone at the time of the incident that led to their death.

There were 38 non-poisoning deaths, 31 (81.6%) in males and seven (18.4%) in females. Deaths by hanging accounted for 23.7% of all non-poisoning deaths and were the most common cause of non-poisoning deaths among both men and women. One third of people who died by hanging died in homeless accommodation. Six people who died by hanging had a history of using drugs with the main substances used being cocaine, heroin, cannabis, and benzodiazepines. A person's history of mental health issues was ascertained through information contained in depositions from family members or friends, or from medical documents within the coronial files. There was a high prevalence of mental health issues in those who died by hanging (66.7%), with depression noted as one of the main issues. Equal numbers of men and women who died by hanging had a mental health issue(s).

Deaths due to cardiovascular conditions accounted for 21.1% of all non-poisoning deaths, with all these deaths among men. Of those people who were homeless and died of a cardiovascular condition, 75% had either alcohol dependency, or had use of alcohol implicated in their death. The remaining deaths included deaths due to other traumatic events (26.3%) or other medical causes (28.9%).

Conclusions

This was the first Irish study to examine the number and cause of death in people who were homeless at the time of their death on a national basis. Findings demonstrated premature mortality in this cohort, high prevalence of substance use, and high prevalence of mental health and medical conditions, including epilepsy and blood borne viruses. People who were homeless were most likely to die in a public place, or emergency homeless accommodation.

Implications for policy

Given that most deaths in people who are homeless in Ireland fall under the remit of the NDRDI, this study shows that it is possible, cost-effective, and a good use of resources to continue to use the NDRDI to collect these data and disseminate findings through published reports.

There is potential to link NDRDI data to other national datasets and indices to ensure complete coverage and provide additional insight in addition to mortality rates and causes of death in people who are homeless nationally, including the Pathway Accommodation and Support System (PASS), the Pobal HP Deprivation Index for Small Areas, Hospital In-Patient Enquiry (HIPE) scheme, Central Treatment List (CTL), and Primary Care Reimbursement Scheme (PCRS).

Potential harm reduction strategies for people who are homeless:

- Training in first aid, including naloxone administration, overdose prevention and suicide awareness for all those who work in homeless accommodation nationally
- An emphasis on trauma-informed, sex-specific psychosocial and specialist mental health supports in addition to appropriate pharmaceutical treatments when treating someone with mental health issues as well as substance use
- Decrease barriers to both accessing, and retention in, treatment services for both sexes, particularly OAT
- Increase understanding around epilepsy among people accessing or working within the homeless services. This includes potential seizure triggers, adherence to medication, awareness among clinicians of this high-risk cohort and need for enhanced care. In addition, appropriate first aid training should be provided for staff in homeless accommodation settings, to reduce the risk of sudden unexplained death due to epilepsy (SUDEP)
- Increase focus on general harm reduction strategies for people who use drugs: harm reduction in relation to using alone, and mixing drugs, particularly central nervous system depressants. Consideration of expanding supervised injection facilities to supervised drug consumption facilities given the number of fatalities in public places and alone at the time of their death.

Section 1: Background to the Study

Introduction

Homelessness in Ireland has been described as a serious public health concern². Glynn et al.³ noted that the homeless situation in Ireland has deteriorated in recent years, with the number of people accessing homeless shelters increasing each year. In 2011 there were 3,808 homeless people in emergency accommodation or sleeping rough in Ireland, while in 2016 there were 6,906^{4,5}. More recent data show an increase to 10,975 individuals accessing emergency accommodation at the end of September 2022⁶.

This issue is not specific to Ireland, for example in the UK, rates of homelessness increased by 165% in the period between 2010 and 2018⁷.

Homeless people in Ireland tend to be concentrated in Dublin, with 72.5% of homeless people recorded in Dublin on census night in 2016⁵. However, rural homelessness is also increasing, in part due to increasing house prices and a decreasing social housing supply⁸. Groups that are particularly vulnerable to homelessness in Ireland include care leavers, people with disabilities, young parents, the elderly, members of the Traveller community, members of the LGBTQI+ community, and those leaving the prison services^{9,10}.

Young people aged between 18 and 24 are disproportionately represented among the homeless population in Ireland. In July 2022, they represented 16.7% of all adults accessing emergency accommodation, but account for approximately 11% of adults in the general population according to the 2016 census figures⁹.

Despite the increase in homelessness nationally, there is a dearth of research into mortality in the homeless population in Ireland. Detailed data are not routinely collected on homeless-related mortality, resulting in the absence of information on the number of deaths as well as the causes of death among homeless people in Ireland². The paucity of research into homeless mortality in Ireland is not unique, as the lack of research is acknowledged internationally¹¹.

Defining homelessness

In Ireland, the Housing Act, 1988, defines an individual as 'homeless' if there is no accommodation that they can reasonably occupy, if the individual is living in hospital or some other institution because there is no alternative accommodation available, or if the individual cannot attain accommodation using their own resources¹². In general, a person who is sleeping rough, squatting, living in a refuge or crisis accommodation, living in bed and breakfast or hotel accommodation temporarily, or living with friends and family in the absence of secure accommodation may be considered homeless by this definition¹³.

Most people experiencing homelessness do so for a short period of time and exit homelessness with the assistance of relevant supports. Those who experience homelessness in the long term tend to do so chronically or episodically¹⁴. The supported accommodation available to homeless people in Ireland includes for example, family hubs, emergency hostels, temporary hotel or bed and breakfast accommodation and long-term supported housing. Transitional housing, or medium-term accommodation, is also available while an individual is awaiting a permanent housing solution⁶⁸.

The negative effect of different factors can depend on the type of homelessness experienced by people. For example, people without accommodation are less likely to receive treatment for substance use disorders than those in sheltered accommodation¹⁵, while those who have experienced homelessness may also have an increased risk of mortality from diseases, medical conditions, and external causes^{15,16}. Therefore, it is important to differentiate and quantify the types of homelessness experienced by people in Ireland, in order to direct supports and services.

Capturing data on homelessness in Ireland

A global framework for conceptualising and measuring homelessness by Busch-Geertsema et al.¹⁴, informed by the European Typology of Homelessness and Housing Exclusion (ETHOS) framework¹⁷, identifies three different categories of homelessness:

- 1) People without accommodation (e.g., rough sleepers)
- 2) People living in temporary or crisis accommodation
- 3) People living in severely inadequate or insecure accommodation.

Data on these three categories are captured in a fragmented way nationally, with more robust data collection structures in place in Dublin.

Rough sleepers

The Dublin Region Homeless Executive (DRHE) conducts rough sleeping counts every spring and winter, to get a snapshot of the number of people sleeping rough during the year. In the spring of 2019, there were 128 people sleeping rough in Dublin, with 90 in winter^{18,19}.

People living in emergency accommodation

In Ireland, data on homelessness is captured according to the first two categories of the above framework using the PASS database. PASS was introduced nationally in 2013. Local authorities submit data on individuals in receipt of State-funded emergency accommodation by region (Dublin, Midlands, North-West, South-East, South-West, Mid-West, Mid-East, North-East and West) and county, and aggregate figures are published by the Department of Housing, Planning and Local Government on a monthly basis.

The PASS database creates one record for each person presenting as homeless. These records are updated according to the individual's engagement with homeless services, including crisis accommodation and rough sleepers outreach services. PASS figures do not capture the entire cohort of rough sleepers in Ireland, nor people living in inadequate or insecure accommodation².

People living in severely inadequate or insecure accommodation

This includes, but is not limited to, accommodation that is severely below the minimum standards for housing (e.g., fire hazards, health risks such as dampness or infestation, structurally unsafe buildings, overcrowding, or lack of sanitary facilities), or accommodation where an individual does not have a contract and is at risk of losing their home at any time. It also includes those who are staying with family or friends on a temporary basis, and those who are 'couch-surfing'²⁰. A 2018 survey by Barnardos identified that 25% of the children supported by their services were living in unsuitable, unsustainable accommodation²¹. However, there is no formal measurement of this population and so the number of people or families living in severely inadequate or insecure accommodation in Ireland is unclear^{20,21}.

Rationale for current research

It is recognised, both in Ireland and internationally, that mortality among people who are homeless is underestimated¹¹. Previous reports have focused on homeless mortality rates and causes of death in the Dublin region but national mortality rates and causes of death in this population remain unclear^{2,22}. This feasibility study was therefore commissioned by the Department of Health to address the need to improve understanding of premature mortality among homeless people nationally, and to provide data to inform policy, and target interventions and supports for homeless people.

Section 2: Literature Review

Introduction

People who are homeless experience poor health and high rates of mortality relative to the general population²³⁻²⁵. Globally, people who are homeless are three to four times more likely to die prematurely than non-homeless people²⁶. This is in part due to an excess prevalence of physical and mental illness, substance use, and exposure to violence and trauma^{15,22}.

The experience of long-term, or chronic homelessness, is associated with premature mortality for both men and women independent of other contributory factors^{15,16,27}. While homelessness itself is not necessarily a cause of death, homelessness confers additional risk of morbidity in people who use drugs, or who have circulatory or cardiovascular and respiratory conditions²⁷.

Mortality and morbidity in people who are homeless

The average lifespan of people who are homeless is significantly shorter than their non-homeless counterparts. In the United States (US), Baggett et al.²⁴ found that the average age at death for the homeless population in Boston was 51 years. Data collected on a cohort of 600 homeless people in the UK identified a median age at death was 51.6 years²⁸. Even within the homeless population, there are variations in mortality rates. Mortality rates for 'rough sleepers' in the US were higher when compared to sheltered homeless people and non-homeless people²⁹. Exposure to harsh environmental and weather conditions has been linked to hypothermia and consequent risk of mortality in this group³⁰.

Two previous Irish studies have examined mortality rates in people who were homeless in Dublin at the time of their death^{2,22}. Ivers and Barry² found that the median age at death of a homeless person in Dublin in the period between 2005 and 2015 was 42 years old, with a standardised mortality ratio (SMR) between three and ten times higher for homeless males, and between six and ten times higher for homeless women, than their non-homeless counterparts. O'Carroll²² identified a median age at death of 43 years in the homeless population in Dublin in 2020. This study also demonstrated a link between duration of homelessness and rising death rate, with a steep increase in mortality rates after 18 months of homelessness²².

Substance use

There is a high prevalence of substance use and addiction in homeless populations^{11,24,26}. The harms of drug addiction include increased mortality due to unintentional overdose or blood borne viruses related to injection practices^{22,24,31}. Compared to the general population, homeless people are disproportionately affected by head and neck cancers¹¹, linked to the increased incidence of smoking in this population³¹. Statistics from England and Wales recorded 597 deaths of homeless people in 2017. Half of these deaths were a result of drug poisonings, alcohol-related liver disease or suicide³².

In Ireland, the most common reason attributed to homelessness is drug and alcohol addiction³³. Drug and alcohol use is prevalent within the homeless population in Ireland^{3,34}, implicated in 58.7% of all deaths in the Dublin homeless population between 2011 and 2015¹¹. In a sample of Irish homeless people, 33% described themselves as actively using drugs, 53% described issues with alcohol consumption, with smoking also common³³.

Mental health and suicidality

There are high rates of mental illness in people who are homeless^{22,35,36}. Keogh et al.³³ found that 70% of a sample of homeless people in Ireland had received a mental health diagnosis such as depression, anxiety, schizophrenia and bipolar disorder. Homeless people also have an elevated risk of suicide, significantly women with psychiatric disorders¹⁶. An increase of 30.2% in suicides among homeless people across England and Wales was noted between 2018 and 2019³⁷.

Self-harm is a strong predictor of suicide³⁸. Self-harm was found to be 30 times higher in the homeless population compared to those with fixed addresses³⁹. The risk of self-harm among the homeless population of Ireland was found to be similarly high⁴⁰. O'Carroll²² suggests that the high rates of suicide in the homeless population are linked to traumas that occur prior to homelessness, such as adverse childhood events, and trauma related to becoming homeless, such as financial stress, eviction, and worsening mental health symptoms.

A study examining data from the National Psychiatric In-Patient Reporting System (NPIRS) showed that the number of admissions and re-admissions to psychiatric inpatient services in Ireland for people who were homeless increased between 2007 and 2017⁴¹. Most patients were males aged between 25 and 34, and were admitted for short periods of time, largely on a voluntary basis with diagnoses of schizophrenia or disorders related to alcohol and drug use. This differs from the national profile of psychiatric hospital admissions, with depressive disorders the most common reason for admission overall⁴².

Other medical conditions

People who are homeless have increased risk of chronic disease related to infection, blood borne viruses, cardiovascular disease, and cancer^{24,29,43}. They are also disproportionately impacted by physical assault and external trauma relative to non-homeless people^{15,24,44}.

The 2016 Irish census found that the proportion of persons with a disability among the homeless population was higher than that for the general population⁵. A total of 1,871 people who were homeless reported that they had a disability, representing 27.1% of the total homeless population in the census. This contrasted with the general population where the rate of disability was 13.5%. The most common type of disability (12.2%) reported among the homeless population in the census was a difficulty with pain, breathing or another chronic illness or condition⁵. A further 11.9% had a psychological or emotional condition.

Homeless people frequently do not engage with health services until symptoms of illness become critical, and have a propensity to withdraw early from treatment⁴⁵. They tend to have fewer engagements with health and social care services than domiciled counterparts, and

the services that they do receive are often acute¹⁵, related to end-of-life care²⁶, or related to substance use treatment, such as methadone substitution³⁵. In the UK, one in three deaths among homeless people were due to causes preventable by timely and effective intervention²⁸. An average of 5.3 physical illnesses were reported in homeless people in Dublin attending primary care services, indicating the frequently complex presentation in this cohort³³. The number of homeless people presenting to an acute hospital in Ireland increased by 406% between 2005 and 2014. Over one in ten of these hospitalisations were related to conditions that were suitable for primary care management, including convulsions or epilepsy, cellulitis, and chronic obstructive pulmonary disease (COPD), indicating the lack of engagement or access to preventative community care in people who are homeless⁴⁶.

Staff working with people who are homeless have reported that they lack sufficient knowledge to navigate and access Irish medical and mental health systems on behalf of their clients, or report stigma from some healthcare workers towards people who are homeless⁴⁷. A lack of collaboration and communication between homeless, psychiatric, medical, and addiction services has been previously identified as a contributory factor towards poor health in people who are homeless^{46,47}.

Section 3: Methods

Aims of study

The aims of this feasibility study are (i) to better inform our understanding of premature mortality among people who were homeless at the time of their death in Ireland, (ii) to collect national coronial data on deaths among people who were homeless at the time of their death, and (iii) to identify causes of death and potential factors associated with these deaths.

Study Objectives

The objectives of this study are:

- To collect data on people who were homeless at the time of their death in 2019 from closed coronial files
- To identify causes of death
- To calculate rates of mortality
- To identify potential factors contributing to premature death
- To determine the potential for ongoing use of the NDRDI methodology to capture this data nationally.

Study design and data sources

This was a retrospective review of all deaths in persons categorised as homeless at time of death in 2019. Data on deaths in persons known to be homeless were extracted from closed coronial files nationwide. Statistics collected by the Central Statistics Office (CSO) and Eurostat were used in calculating general population estimates.

Inclusion criteria

All persons categorised as homeless at time of death in 2019, and whose deaths were reported to the coroner, were included in the study (See Appendix A for circumstances where a death must be reported to the coroner).

Data collection

The National Drug-Related Deaths Index (NDRDI) is an epidemiological database which records all poisoning deaths by drugs and/or alcohol. The NDRDI's definition of a poisoning death is a death directly due to the toxic effect of one or more substances on the body, as indicated by the Coroner on the Coroner's Certificate.

The NDRDI also records all other deaths that are not poisonings among persons with a recorded history of drug and/or alcohol dependence or non-dependent misuse of drugs irrespective of whether the drug was or was not directly implicated in the death (defined as "non-poisoning").

The NDRDI is populated and maintained by the National Health Information Systems (NHIS) Unit within the Health Research Board (HRB) and is funded by the Departments of Health and Justice. The objective of the NDRDI is to provide high quality data so that the State can respond in a timely manner on drug-related mortality.

The NDRDI records data from four sources: the Coroner Service, the CTL, HIPE, and the General Mortality Register (GMR) via the CSO. The main source of NDRDI data is from closed coronial files. Trained HRB research nurses visit each coroner's office nationwide and extract information from closed inquest files and non-inquest files for a particular year of death using a comprehensive protocol. Data are manually entered and stored electronically on a password protected web-based system called HRB LINK, with data reviewed and cleaned by a second researcher for robustness and consistency. Data from the other State agencies is submitted to HRB LINK in electronic format on an annual basis. As coronial data is collected for the purpose of the coroner's investigation and not specifically for research, data that may be of interest for research purposes may not always be available in the coronial files.

The NDRDI only records that a person is alcohol dependent when it is clearly documented that the person was alcohol dependent or had a medical condition associated with alcohol dependency, such as alcoholic liver disease. Documentation of phrases such as 'abused alcohol' or 'misused alcohol' alone are not sufficient to be classified as alcohol dependent or warrant inclusion of a case in the NDRDI.

For the purposes of this study, data on all deaths that occurred in persons categorised as homeless at time of death in 2019 were collected from closed coronial files, even if they otherwise were outside of the normal NDRDI inclusion criteria. The deceased was classified as homeless if one or more of the following criteria were met:

1. Homeless – without accommodation, e.g., rough sleepers
2. Homeless – temporary or crisis accommodation
3. Homeless – severely substandard or highly insecure accommodation
4. Homeless – unknown

These criteria are based upon the global definition of homelessness by Busch-Geertsema et al.¹⁴, adapted to reflect the types of accommodation available to homeless people in Ireland. Definitions and categorisation method are provided in Appendix B.

Variables

Variables collected in the study included:

- Demographics: age, sex, country of birth, address, marital status, ethnicity, place of incident
- Socioeconomic factors: occupation, employment status, number of children, type of accommodation
- Substance use/dependency
- Treatment for substance use/dependency
- Other factors: intravenous drug use, history of mental illness, blood borne viruses, epilepsy

- Toxicology report
- Cause of death.

Data analysis

Crude mortality rates were calculated per 100,000 of the general population based on national census and projected population figures, standardised to the European Standard Population (ESP). Irish general population estimates were extracted from the CSO for calculation of rates of drug poisoning deaths per 100,000 population⁴⁸. The ESP was used to calculate age-standardised mortality rates using the direct method⁴⁹.

Descriptive statistics were used to summarise data. Data are presented using frequencies (%), with means and 95% confidence intervals (CI) for normally distributed data and medians and interquartile ranges (IQR) presented for non-normal distributions. Data were analysed using SPSS Version 22⁵⁰.

Ethics approval

Ethical approval for this feasibility study was received from the Irish College of General Practitioners (ICGP) research ethics committee (application no: ICGP_REC_20_0025).

Section 4: Results

Number of deaths

A total of 17,822 deaths were reported to the coroners in 2019. There were 84 deaths identified among people known to be homeless at the time of their death, just over half (54.8%) of which were poisoning deaths (Table 1). This equates to over one death a week (1.6 deaths per week), or 7 deaths per month in this population in 2019. An additional 28 deaths occurred in people who had been homeless but had recently been housed. This was outside the scope of the current study, but data are provided in Appendix C.

Table 1: Total deaths among homeless people, by category of homelessness and type of death

	Rough sleepers	Temporary or crisis accommodation	Other categories of homelessness *	Total
Poisoning deaths, No. (%)	9 (10.7)	21 (25.0)	16 (19.0)	46 (54.8)
Non-poisoning deaths, No. (%)	9 (10.7)	19 (22.6)	10 (11.9)	38 (45.2)
Total, (%)	18 (21.4)	40 (47.6)	26 (31.0)	84 (100)

*Also includes substandard or insecure homelessness, and unknown types of homelessness

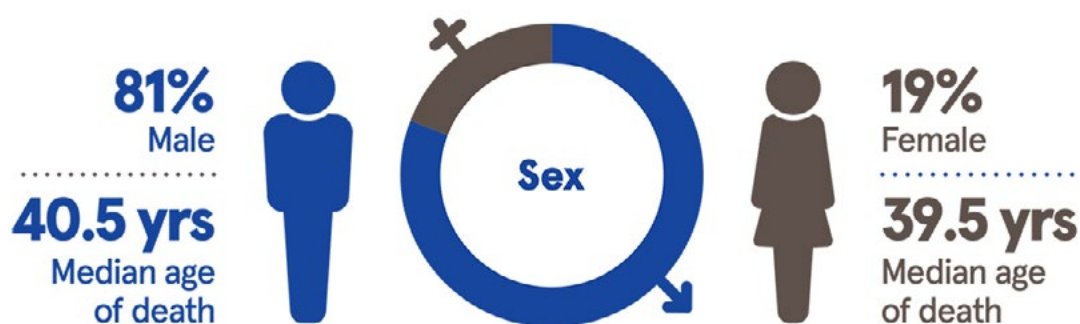
Number of deaths



Demographics

Males accounted for the majority of deaths (81.0%) among people who were homeless. The crude mortality rate for those who were homeless at time of death was 2.24 per 100,000 of population, while the age-standardised mortality rate was 4.14 per 100,000 of population (95% CI 3.73 – 4.55). The median age for all deaths among people who were homeless was 40 years [IQR 14]. Median age at death for males was 40.5 years [IQR 16] and for females 39.5 years [IQR 13].

Breakdown by sex



The majority (82.8%) of deaths in the general population in Ireland in 2019 were in the 65+ age category. In contrast, the majority (64.3%) of deaths in homeless people were among people under the age of 44 years. Deaths among males who were homeless represented 7.1% of all deaths among males in Ireland aged 25-44 years of age in 2019, while deaths among females who were homeless represented 2.6% of all deaths among females in Ireland aged 25-44 years of age (Table 2).

The majority were of single marital status at time of death, with 77.9% of men and 87.5% of women single, separated, or divorced. Nine men had a history of imprisonment. However data were not validated with the prison services, so this figure is likely to be an underestimate based on previous validation projects (Table 3).

Country of birth was recorded for 19 people. Most deaths, where country of birth was known, occurred in people who were born in Poland, followed by deaths in those born in Ireland. Deaths in Polish men represented 11.8% of all deaths among men who were homeless in 2019.

The Interquartile range (IQR) is a value calculated as the difference between the upper and lower quartiles, Q3 and Q1, within the data. It tells us how spread out the data are.

Table 2: Deaths among homeless people, as a proportion (%) of all deaths in the general population in Ireland in 2019

CSO age categories	Male	Female	Total
15-24	0.9	4.9	2.0
25-44	7.1	2.6	5.4
45-64	1.0	0.3	0.7
65+	0.0	0.0	0.0
Total	0.4	0.1	0.3

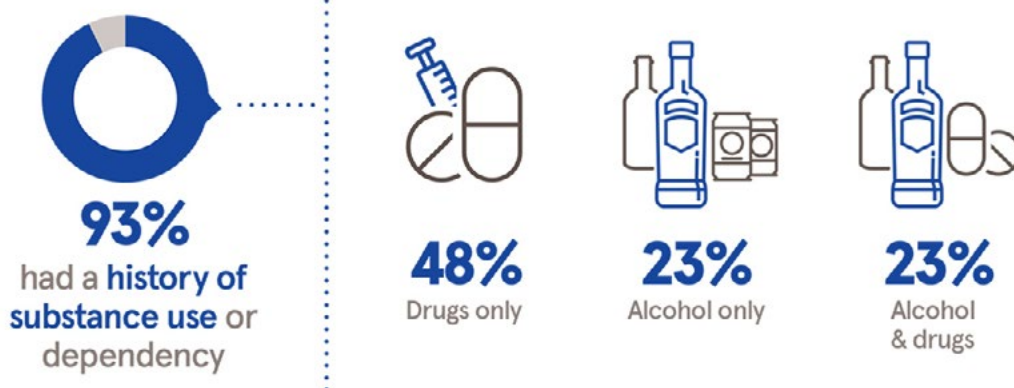
A variety of potential contributing factors and co-morbidities were examined for all deceased, including: previous and current injecting behaviour, previous or current treatment for substance use, polydrug use, prescribed medication use, a history of mental health issues other than drug or alcohol use or dependency, a diagnosis of epilepsy, and a diagnosis of any blood borne viruses.

Potential associated contributing factors

Most people who were homeless at the time of death (92.9%) had a lifetime history of substance use (where there was evidence recorded in the coronial file that the individual had a history of drug use or alcohol dependency). For those with a history of substance use, almost one quarter were also known to have alcohol dependence.

The most common drug used within the group of people with a lifetime history of drug use was heroin, followed by cocaine and benzodiazepines. Similar findings were seen for both men and women. Over half (55.0%) of people who used drugs (not including alcohol use) and were homeless at the time of their death, had a recorded history of polydrug use.

Substance use



Thirteen people had pregabalin present in their toxicology report. Pregabalin is licensed for use to treat epilepsy, generalised anxiety disorder, and neuropathic pain⁵¹. While initially, it was considered to have low abuse potential, studies have shown that there is inappropriate use of pregabalin among people who are known to misuse opioids and among those in treatment for substance use^{51,52}. There has been an increase in the presence of pregabalin in toxicology on NDRDI cases, with pregabalin-positive poisoning deaths increasing by 221% between 2013 and 2017⁵³.

Over one in four (26.2%) had ever injected drugs. In males, 27.9% had a lifetime history of injecting drugs, while 16.2% were injecting at time of death. In females, 18.8% had a history of injecting drugs, with none injecting at the time of their death. One in five (20.2%) of all people who were homeless at the time of their death had a diagnosis of hepatitis C, with a higher proportion of women (25.0%) relative to men (19.1%). A small number (<5) also had either hepatitis B or HIV.

A high proportion of the deceased in this cohort had a diagnosis of epilepsy (7.1%) relative to the general population. Half of those with a diagnosis of epilepsy were known to also have alcohol dependency. Anti-epileptic drugs (AEDs) were reported in the toxicology of two thirds of those with epilepsy, suggesting that not all homeless people with epilepsy in this study were in receipt of prescribed medication, or were not taking medication, at the time of their death.

Epilepsy prevalence



Thirty-two people overall (38.1%) had a history of mental health issues. A medical professional was the source of diagnosis for the majority (75.0%) of those with a history of mental health issues. Depositions from other parties, as part of the death investigation file, was the source of information on mental health issues from the remainder (25.0%).

Mental health

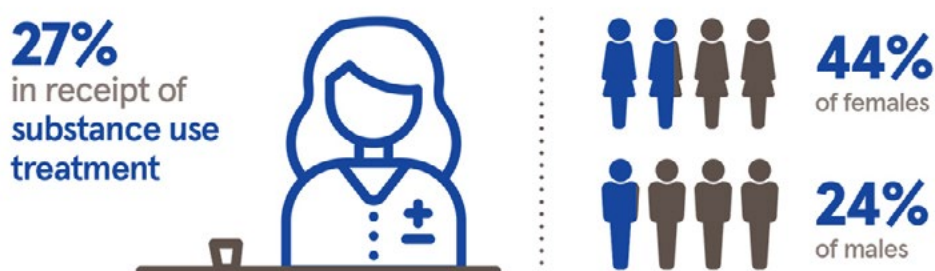


A higher proportion of women relative to men had a recorded history of mental health issues (75.0% versus 29.4%). Mood or affective disorders, most commonly depression, were the most frequently reported mental health issue for both women (56.3%) and men (19.1%). A history of a previous suicide attempt was more common in women (31.3%) than men (13.2%).

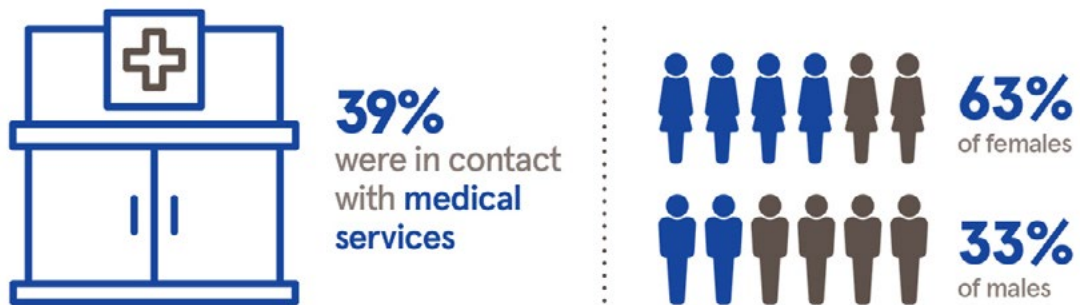
Treatment services

Just over two in five people (40.5%) who were homeless at the time of their death were known to have ever accessed treatment for substance use. A higher percentage of women (43.8%) were in receipt of substance use treatment than men (23.5%) at the time of their death. The main treatment was OAT, with all women in substance use treatment receiving OAT, specifically methadone. A higher percentage of women (62.5%) were in contact with medical services than men (33.8%). This was determined using prescribed medication as a proxy for contact.

Substance use treatment



Contact with medical services



Of those with a history of mental health issues, three in five (59.4%) were known to be in contact with medical services because they were receiving prescribed medication. However, the medical condition being treated, and type of service attended was not collected in this study. The most common drug groups present on post-mortem toxicology in this cohort were benzodiazepines, followed by antidepressants.

Table 3: Demographics and characteristics of the deceased, by sex

	Male	Female	Total*
Deaths, No. (%)	68 (81.0)	16 (19.0)	84 (100)
Demographics, No. (%)			
Age, years			
15–44	43 (63.2)	11 (68.8)	54 (64.3)
45–64	25 (36.8)	5 (31.3)	30 (35.7)
Country of birth ^a			
Poland	8 (11.8)	0 (0)	8 (9.5)
Ireland	~	~	7 (8.3)
Single marital status	53 (77.9)	14 (87.5)	67 (79.7)
Unemployed status ^b	52 (76.5)	15 (93.8)	67 (79.7)
History of imprisonment	9 (13.2)	0 (0)	9 (10.7)
Dublin region	42 (61.8)	8 (50.0)	50 (59.5)
Cause of death, No. (%)			
Poisoning	37 (54.4)	9 (56.3)	46 (54.8)
Non-poisoning	31 (45.6)	7 (43.8)	38 (45.2)
Co-morbidities, No. (%)			
Substance use history	64 (94.1)	14 (87.5)	78 (92.9)
Drug use only	33 (48.5)	7 (43.8)	40 (47.6)
Drug and alcohol use ^c	~	~	19 (22.6)
Alcohol use only ^c	~	~	19 (22.6)
History of mental health issue ^d	20 (29.4)	12 (75.0)	32 (38.1)
Mood disorder	13 (19.1)	9 (56.3)	22 (26.2)
Previous suicide attempt	9 (13.2)	5 (31.3)	14 (16.7)
Blood borne virus	~	~	17 (20.2)
Epilepsy	~	~	6 (7.1)
Treatment history, No. (%)			
Ever treated for substance use	25 (36.8)	9 (56.3)	34 (40.5)
Current substance use treatment	16 (23.5)	7 (43.8)	23 (27.4)
Opioid agonist treatment (OAT)	15 (22.1)	7 (43.8)	22 (26.2)
Prescribed medications	23 (33.8)	10 (62.5)	33 (39.3)

*Percentages may not add up to 100 due to rounding

^a Country of birth was not recorded for 65 people; small country numbers are not presented here

^b Refers to those unemployed, retired, or unable to work due to disability

^c Includes alcohol misuse and alcohol dependency

^d Ascertained through depositions from family members or from medical correspondence contained in the coronial file

~ Fields where one or both subcategories have a value less than five – to ensure anonymity only the total numerical value is presented

Characteristics of death

Place of incident that led to death

The majority of all deaths (77.4%) among people who were homeless occurred in the Leinster region (80.4% of all poisoning deaths and 73.7% of all non-poisoning deaths). Most of these deaths occurred in Dublin (59.5%), with 7.1% occurring in Cork. The small numbers outside of Dublin means that no county or province breakdown can be provided. Deaths by PASS regions are provided in Table 4, with deaths in the Mid-East, North-East and Midlands, and Mid-West and West reported together due to small numbers.

Table 4: Location of deaths among people who were homeless

PASS regions	No. of deaths, (%)*
Dublin	50 (59.5)
South-East	8 (9.5)
South-West	7 (8.3)
Mid-West and West ^a	8 (9.5)
Mid-East, North-East and Midlands ^a	11 (13.1)
Total	84 (100)

^a Areas combined because of small numbers

The highest proportion of all deaths (40.5%) occurred in a public place. A further 32.1% of deaths occurred in specific accommodation for homeless people (see Tables 5, 6 and 7). Twenty-two deaths (26.2%) occurred in private dwellings. A high proportion of deaths (39.3%) occurred in the first quarter of 2019.

Place of death

60%
in Dublin

7%
in Cork

33%
Rest of Ireland



40%
occurred in a **public place, public building, or derelict building**

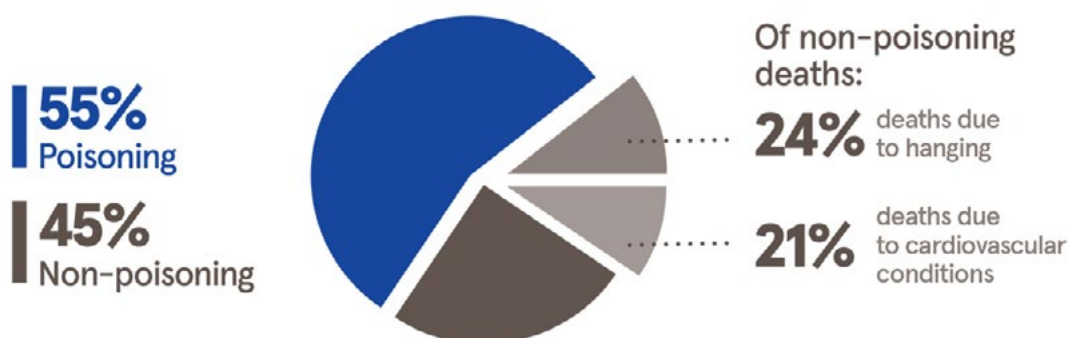


32%
died in **emergency accommodation**

Cause of death

Deaths in this study were categorised as poisoning or non-poisoning deaths. Poisoning deaths, also known as overdoses, are deaths due to the toxic effects of recent consumption of one or more drugs, including alcohol⁵³. Non-poisoning deaths are deaths that occur as a result of trauma, such as hanging or assault, or due to medical reasons, such as a cardiac event⁵⁴.

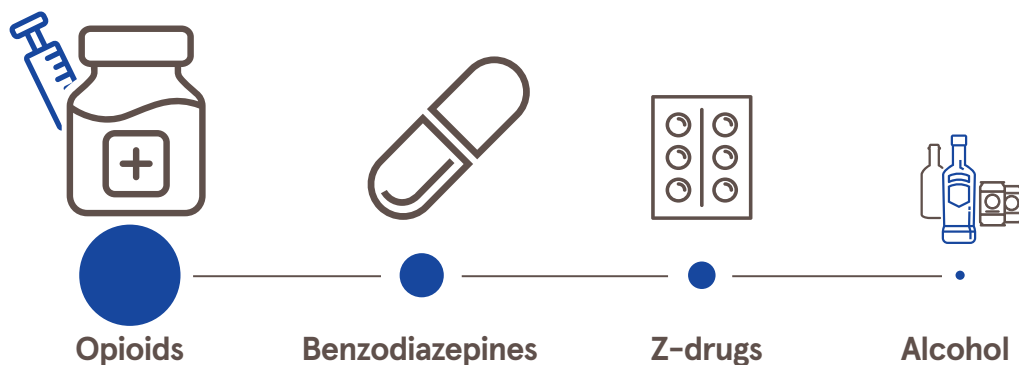
Cause of death



Poisoning deaths

There were 46 poisoning deaths in total, 37 (80.4%) among males and nine (19.6%) in females (Table 5). The median age for poisoning deaths among people who were homeless at the time of their death was 38.0 [IQR 14], with similar median ages for both men (38.0 [IQR 12]) and women (38.0 [IQR 17]).

Most common drugs implicated in poisoning deaths



The most common drug group implicated in poisoning deaths were opioids, followed by benzodiazepines and Z-drugs. Pregabalin was implicated in less than five poisoning deaths. Forty-six opioid-type drugs were implicated in 37 poisoning deaths. Almost one quarter (24.3%) of this group had a known history of previous overdose. Polydrug use was common in both men (51.4%) and women (66.7%). Nine individuals had two or more opioid drugs implicated in their death.

Almost one in three poisoning deaths involving opioids occurred in a public place, with a further two in five occurring in homeless accommodation (Table 6). Just over half (51.4%) of the people who died of a poisoning death involving opioids were not alone at the time of the incident that led to their death.

Table 5: Demographics and characteristics of poisoning deaths, by sex

	Male	Female	Total*
Poisoning deaths, No. (%)	37 (80.4)	9 (19.6)	46 (100)
Demographics, No. (%)			
Age, median [IQR]	38.0 [12]	38.0 [17]	38.0 [14]
Unemployed status ^a	29 (78.4)	9 (100)	38 (82.6)
Known to have children <18 years	~	~	12 (26.1)
History of imprisonment ^b	6 (16.2)	0	6 (13.0)
Dublin region	~	~	29 (63.0)
Treatment history, No. (%)			
Ever treated for substance use	18 (48.6)	6 (66.7)	24 (52.2)
Current substance use treatment	12 (32.4)	6 (66.7)	18 (39.1)
History of previous overdose	~	~	11 (23.9)
Circumstances of death, No. (%)			
Current injector	11 (29.7)	0 (0)	11 (23.9)
Incident occurred in public place	15 (40.5)	0 (0)	15 (32.6)
Incident occurred in homeless accommodation	~	~	16 (34.8)
Not alone at time of death	~	~	22 (47.8)
Polydrug use implicated in death	19 (51.4)	6 (66.7)	25 (54.3)
Drugs implicated in death, No. ^c			
Opioids	37	9	46
<i>Methadone</i>	18	6	24
<i>Heroin</i>	~	~	19
Benzodiazepines	26	7	33
<i>Diazepam</i>	~	~	14
<i>Other benzodiazepines</i>	14	5	19
Z-drugs	~	~	18
Alcohol	~	~	15
Antidepressants	7	6	13
Cocaine	~	~	12
Other illicit drugs ^d	~	~	8
Other medication ^e	8	6	14

*Percentages may not add up to 100 due to rounding

^a Refers to those unemployed, retired, or unable to work due to disability

^b Data have not been validated with the prison services therefore likely to be an underestimate

^c Total number of drugs does not equate to the number of individual deaths due to polydrug use

^d For example, MDMA, amphetamines, novel psychoactive substances

^e For example, antipsychotics, antiepileptic drugs, non-opioid analgesia

~ Fields where one or both subcategories have a value less than five – to ensure anonymity only the total numerical value is presented

Table 6: Characteristics of opioid poisoning deaths, by sex

	Male	Female	Total*
Opioid poisoning deaths, No. (%)	30 (81.1)	7 (18.9)	37 (100)
Treatment history, No. (%)			
Ever treated for substance use	17 (56.7)	6 (85.7)	23 (61.2)
Current substance use treatment ^a	11 (36.7)	6 (85.7)	17 (45.9)
History of previous overdose	~	~	9 (24.3)
Circumstances of death, No. (%)			
Current injector	11 (36.7)	0 (0)	11 (29.7)
Incident occurred in public place	12 (40.0)	0 (0)	12 (32.4)
Incident occurred in homeless accommodation	~	~	15 (40.5)
Not alone at time of death	~	~	19 (51.4)
Polydrug use implicated in death	29 (96.7)	5 (71.4)	34 (91.9)

*Percentages may not add up to 100 due to rounding

~ Fields where one or both subcategories have a value less than five – to ensure anonymity only the total numerical value is presented

^a Current refers to within a month preceding death

Non-poisoning deaths

There were 38 non-poisoning deaths, 31 (81.6%) among males and seven (18.4%) among females. The median age for non-poisoning deaths among people who were homeless at the time of their death was 43.5 [IQR 17]. The median age for men was 46.0 [IQR 18], and 40.0 [IQR 7] for women, illustrating that those who died of a non-poisoning death were older than those who died of a poisoning death.

Death by hanging accounted for 23.7% of all non-poisoning deaths and was the most common cause of non-poisoning death among both men and women. One third of deaths due to hanging occurred in homeless accommodation. Six people who died by hanging had a history of drug use, with the main substances of use being cocaine, heroin, cannabis, and benzodiazepines. There was a high prevalence of mental health issues in those who died by hanging (66.7%), with depression noted as the main issue. Equal numbers of men and women who died by hanging had a mental health issue(s).

Deaths due to cardiovascular conditions accounted for 21.1% of all non-poisoning deaths, with all these deaths among men. Of those people who were homeless and died of a cardiovascular condition, 75% had either alcohol dependency or had use of alcohol implicated in their death. Opioids were the main drug type used by people who were homeless and who died of a cardiovascular event.

Table 7: Demographics and characteristics of non-poisoning deaths

	Total*
Non-poisoning deaths, No. (%)	38 (100)
Male	31 (81.6)
Female	7 (18.4)
Demographics, No. (%)	
Age, median [IQR]	43.5 [17]
Male	46.0 [18]
Female	40.0 [7]
Unemployed status ^a	32 (84.2)
Male	23 (60.5)
Female	9 (23.7)
Known to have children <18 years	7 (18.4)
Dublin region	21 (55.3)
Circumstances of death, No. (%)	
Incident occurred in public place	19 (50.0)
Incident occurred in homeless accommodation	11 (28.9)
Not alone at time of death	15 (39.5)
Substance use history, No. (%)	
Alcohol dependence/misuse	22 (57.9)
Other drug use	20 (52.6)
Heroin	11 (28.9)
Cocaine (incl. crack cocaine)	10 (26.3)
Cannabis	8 (21.1)
Methadone	6 (15.8)
Benzodiazepines	5 (13.2)
Cause of death, No. (%)	
Trauma	19 (50.0)
Hanging	9 (23.7)
Other external trauma ^b	10 (26.3)
Medical	19 (50.0)
Cardiovascular	8 (21.1)
Alcohol-related	5 (13.2)
Other medical ^c or unknown causes	6 (15.8)

*Percentages may not add up to 100 due to rounding

a Refers to those unemployed, retired, or unable to work due to disability

b Incl. assault, stabbing, fall, drowning

c Incl. cerebral event and infection

Section 5: Discussion

Key findings

The purpose of this feasibility study was to better inform our understanding of premature mortality among people who were homeless at the time of their death in Ireland; to collect national coronial data on deaths among people who were homeless at the time of their death; and to identify causes of death and potential factors associated with these deaths.

Almost 18,000 deaths reported to coroners nationally were reviewed as part of the NDRDI data collection for 2019 deaths. Nationally, a total of 84 deaths occurred in people who were homeless at the time of their death, 68 of whom were men. The highest proportion of deaths occurred in the Dublin region, in a public place or in emergency accommodation for the homeless. More than half of all deaths were poisonings, with opioids the main drug group involved.

Mental health issues were common, particularly among women. Almost all of the deceased had a history of substance use or dependency, with a high level of polydrug use. There was a high proportion of people who injected drugs, particularly men, and prevalence of hepatitis C in this cohort. A high proportion of the deceased, especially women, were in contact with medical services around the time of their death.

Mortality rates

Ivers and Barry² identified that the median age at death for homeless people in Dublin was 42 years, while the homeless population in O'Carroll's study had a median age at death of 43 years²². In this study, we found a lower median age at death of 40.5 years. This may indicate that people who are homeless and living outside of the Dublin region are slightly younger than those living in Dublin.

The SMR for homeless men in Dublin for the period between 2005 and 2015 was previously calculated at between three and almost ten times higher than males in the general Dublin population. For homeless women in Dublin for the same time period, the SMR was six to ten times higher than women in the general Dublin population². Due to lack of available data on a national basis, it was not possible to calculate an SMR for homeless people in 2019 in this study. However, proportionally, homeless males aged 25-44 represented 7.1% of all deaths in the total population aged 25-44 in 2019, while homeless females aged 15-24 represented 4.9% of all deaths in the total population aged 15-24 in 2019. This highlights the risk of premature mortality in the homeless population throughout Ireland.

Deaths due to opioids

Excess prevalence of drug and alcohol use in people who are homeless is well-known. Previous research into homeless mortality illustrates the impact of drug use on this population, particularly in relation to opioid poisoning deaths^{11,24,29}. Opioids were implicated in 80.4% of poisoning deaths in this study, with 40.5% of these deaths occurring in emergency accommodation for the homeless. The need to broaden the distribution of naloxone, the opioid antagonist, in Ireland has previously been raised²². The Naloxone Programme⁵⁵ in Ireland currently delivers training and provides naloxone to service providers that may encounter people who use drugs, such as those in homeless services. The majority of these services are in Dublin and the South-West of Ireland. Due to the COVID-19 pandemic, it was recognised that people who use drugs may be at increased risk of overdose due to isolation practices, so expanded access to naloxone was introduced by the HSE to those most at risk, with naloxone packs and brief training delivered to opioid users and partners by the Ana Liffey Drug Project when delivering their Needle and Syringe Programme⁵⁶. Outside of the Dublin region, administration of naloxone by service providers appears infrequent⁵⁵.

Deaths in homeless women

Evidence suggests that women do not experience homelessness in the same way as men¹⁴. There is often a disparity in SMR for homeless men and women, with higher SMR and a lower median age of death for women^{2,22,23,28}. Women may have a higher prevalence of chronic medical conditions¹⁶, and be reluctant to present to homeless or addiction services because of stigmatisation and feelings of shame⁵⁷. Women who are homeless and who use drugs may engage in sex work and be at increased risk of blood borne viruses, infection, and physical assault^{57,58}.

Women accounted for 19.0% of deaths among people who were homeless in Ireland in 2019 and presented with a different pattern of potential contributory factors in comparison to men in this study. Women were proportionally more likely than men to have a history of a mental health issue(s) and have a history of a previous suicide attempt. Unlike men, women are less likely to self-refer for substance use treatment⁵⁷. In this study, a high proportion of women were receiving OAT around the time of their death and had a high rate of polydrug use, indicating more complex treatment needs.

Differences in the relationship between sex and mortality among homeless people suggests that interventions should be tailored based on the sex of the individual¹⁶, and our findings support this. Women-only services, the provision of childcare supports, and speedy access to stable accommodation can reduce harm and mortality in this group⁵⁷.

Epilepsy and homelessness

The prevalence of people who have epilepsy in the general population in Ireland is 0.9% for those who are treated for epilepsy and 1.0% for self-reported epilepsy⁵⁹. The prevalence of epilepsy among people who died of a drug or alcohol-related death in Ireland between 2004 and 2013 was 1.7%⁶⁰. O'Farrell et al⁴⁶ identified that 4.5% of emergency admissions to hospital in Ireland in people who were homeless were due to convulsions or epilepsy, although this figure may include re-admissions and therefore is not an accurate reflection of prevalence.

Over seven per cent (7.1%) of the people in our study had epilepsy, a much larger proportion than anticipated based on reported prevalence in Ireland, but a similar prevalence to other studies examining morbidity specifically in people who are homeless. High rates of epilepsy have been reported among homeless populations internationally, with reasons for the increased prevalence unclear, although there is some evidence that chronic abuse of alcohol can lead to the development of epilepsy⁶¹. A seminal study by Laporte et al.⁶² found that when discounting the presence of alcohol-related seizures, eight per cent of the homeless population surveyed in Paris, France, had active epilepsy. Almost 25% of patients in this French study who experienced seizures and who were homeless, left employment because of seizure activity.

Particular risks for seizures in people with epilepsy who are homeless include drug and alcohol use or withdrawal from same, poor general health, infections, dehydration, and poor adherence or access to medication⁶³. SUDEP is associated with poorly controlled epilepsy, and having a seizure while alone⁶³. One third of the people in this study who had epilepsy had no anti-epileptic drugs present in their toxicology reports, a risk factor for SUDEP.

Half of those diagnosed with epilepsy in this study had an alcohol dependency, a potential trigger for seizures. Furthermore, one third of those with epilepsy were not in receipt of AEDs at the time of their death or were not compliant with treatment. It is therefore possible that the non-poisoning deaths linked to cerebral incidents or falls in this study were also epilepsy related.

Limitations

There were limitations to this study. Firstly, as there is no complete national list or reference point for some of the private emergency accommodation or supported temporary accommodation it was not always possible to identify what type of homeless accommodation the person had been using based on their address. It is known that there is considerable movement between rough sleeping and temporary or crisis accommodation among people who are chronically homeless in Dublin⁴⁶, therefore someone who is classed as a rough sleeper may have used temporary accommodation in the time preceding the incident that led to their death. The research nurses assigned a category of homelessness based on the information available to them in the coronial file, or if uncertain, assigned unknown.

Where the death is expected, for example, a person who is homeless and receiving palliative care in a hospice or hospital, these deaths are not usually reported to the coroner so this cohort is not necessarily represented. Due to a variety of reasons, the coronial death investigation on a death which occurred in 2019 may not have been closed at the time of data collection, therefore it is likely that a small number of deaths among people who were homeless at the time of their death were not included in this analysis.

Data in coronial files are not structured for research purposes. The coroner (an independent officer holder) has responsibility under the law for investigating the circumstances of all sudden, unexplained, violent and unnatural deaths in order to establish the who, when, where and how of the death⁶⁴.

A person's reason for being or becoming homeless, length of time of homelessness, last or

most recent contact with homeless services, were not included in the data collection protocol.

It was not possible to definitively state whether a person who was homeless was part of a family unit. Marital status, number of children and who the deceased was with at the time of death were recorded (where that data is available) to account for this.

Proxy variables were used to determine a person's last or most recent contact with health services, including if they were in hospital at the time of their death, if they were currently in treatment for substance misuse and the type of drug they were being treated for, or if they were on prescribed medicines. A range of medical issues were collected where available including history of sleep problems, chronic pain, epilepsy and blood borne viruses.

Similarly, data on the presence of mental health issues was extracted from the information provided by family members or friends contained within depositions, in the absence of a formal diagnosis from a medical professional.

It was not possible to calculate standardised mortality rates for the homeless population, as denominator data for the total number of homeless people in Ireland for 2019 was not available from the Department of Housing, Planning and Local Government. Their data includes only those accessing emergency accommodation.

As there is no national coronial register, NDRDI data collection is a manual process carried out by nurse researchers. Because of the upheaval related to the COVID-19 pandemic and public health restrictions, there was a delay in the 2019 data collection, and data collection was continued for 2020 deaths. An update to the results of this study using 2020 data is anticipated to be published in 2023.

Section 6: Conclusions

Implications for policy

The findings of this study have implications for policy in the following areas:

Data collection

Given that the majority of deaths among people who are homeless in Ireland fall under the remit of the NDRDI, this study shows that it is possible, cost-effective, and a good use of resources to continue to use the NDRDI for this data collection. A caveat is that due to the method of data collection, deaths are not recorded in real-time, so this process is only part of the data collection methods for homeless deaths data collection, alongside PASS. However, it is important to get the official cause of death when examining deaths in the homeless population nationally, and access to coronial data through the NDRDI data collection methodology can provide this.

There is the possibility to add additional variables to the NDRDI data collection form, to provide additional context to the cause and circumstances of death in people who are homeless in areas where there are knowledge gaps. Given that coronial data is not collected for primary research purposes, some data of interest may not be available.

Data linking and further analysis

There is potential to link NDRDI data on deaths in the homeless population to the Pobal HP Deprivation Index for Small Areas⁶⁵. This index draws upon Irish census data to provide a geographical distribution of deprivation in Ireland. This would produce insight into not only the location of deaths among homeless people, but if they are more common within areas of economic and opportunity deprivation.

Other national datasets of interest for linking and matching NDRDI data includes HIPE, the CTL, the Irish Prison Service and the PCRS database. Linking with these datasets could help to match for prescriptions, type of medical co-morbidities, and hospital admissions of people who were homeless at the time of their death. Implementation and use of the Individual Health Identifier would aid in facilitating linkage.

There is potential to link NDRDI data to the PASS system, to support the development of a critical incident management review process of deaths in the homeless population in Ireland, an area of learning previously identified as a need in the sector by O'Carroll²². Linking with the PASS system will also help to confirm whether an individual was homeless and not in homeless supported accommodation, and the category of homelessness which best fits their situation around the time of their death, which was not always possible to determine using the address in coronial files as described above in the limitations.

Interventions to reduce mortality

Potential harm reduction strategies for people who are homeless:

- Almost one third of all deaths in this study were in people who were staying in temporary or crisis homeless accommodation. This highlights the need to increase focus on provision of first aid and naloxone, signs of overdose, and suicide awareness in all those who work in homeless accommodation nationally
- An emphasis on trauma-informed, sex-specific psychosocial and specialist mental health supports in addition to appropriate pharmaceutical treatments when treating someone with mental health issues as well as substance use
- Decrease barriers to both accessing, and retention in, treatment services for both sexes
- The high proportion of homeless people with epilepsy, relative to the general population, is of interest. A person who has epilepsy and who is homeless should be educated on potential seizure triggers, and the importance of adherence to medical treatment, to reduce the risk of SUDEP. Medical personnel should be made aware of this high-risk group who may require extra supports in treatment provision. Additional research in this area would illuminate additional potential contributory factors for homelessness and mortality in this cohort
- General harm reduction strategies for people who use drugs:
 - Supervised injection facilities, which could be expanded to supervised drug consumption facilities, may be beneficial in helping to access a hard-to-reach cohort of people who use drugs, allow for safe consumption of drugs and reduce transmission of blood borne viruses through needle exchange services
 - Harm reduction information in relation to using alone, and mixing drugs, particularly central nervous system depressants
 - The HSE Naloxone Programme should continue to be resourced and expanded.

Conclusions

This was the first national study to examine number and cause of deaths in people who were homeless at the time of their death in Ireland. Findings demonstrated premature mortality, high prevalence of substance use, and high prevalence of mental health issues and medical conditions. People who were homeless were most likely to die in a public place, or emergency homeless accommodation. These findings can inform policy to reduce mortality in the homeless population in Ireland.

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Appendix A

Types of deaths that must be reported to the coroner^{66,67}

- Sudden, unnatural, violent or unexplained deaths (where a doctor cannot sign a Death Notification Form)
- Deaths where the doctor has not attended to the deceased in the last month
- Deaths in certain other categories, including any death:
 - a. that is COVID-19 related (not applicable to this study which uses 2019 data)
 - b. that is connected with a crime or suspected crime
 - c. whether it not accidental, caused fully or partly by stabbing, drowning, poisoning, hanging, electrocution, asphyxia, or a gunshot wound
 - d. where the deceased person is dead on arrival at a hospital
 - e. due to suicide
 - f. where the body of the deceased person is unidentified
 - g. where no family member of the deceased person can be traced within a reasonable time of the death
 - h. where the body of the deceased person is found or recovered in circumstances that indicate that the death may have occurred a considerable period of time previously
 - i. (other than in circumstances that apply in the above line) regarding which the date of death may not be certain
 - j. caused fully or partly by any of the following:
 - i. an incident, whether or not accidental, resulting in any physical injury, including a cut, fracture or contusion
 - ii. a fall
 - iii. self-neglect
 - iv. an eating disorder
 - v. exposure or hypothermia
 - vi. burns
 - k. which may be by assisted suicide
 - l. caused wholly or partly by any of the following:
 - i. an accident caused by the use of a vehicle in a public place
 - ii. an incident on a railway
 - iii. an incident on a train, aircraft, ship, or other vessel

- m. caused fully or partly by any of the following:
 - i. a notifiable disease or condition that is required to be notified to a Minister of the government, a Department of State or a statutory body or to an inspector or other officer of a Minister of the government, a Department of State or a statutory body
 - ii. an adverse reaction to any drug
 - iii. a drugs overdose or the presence of toxic substances
 - iv. in the case of an infant death, maternal drug addiction
 - v. an infection contracted as a result of previously contaminated blood product administration
 - vi. a lack of care or neglect
 - vii. starvation or malnutrition
- n. which may be due to a prion disease
- o. caused fully or partly by an accident at work or due to industrial or occupational injury or disease
- p. that happened in a hospital or other health institution:
 - i. that is unexpected
 - ii. within 24 hours of presentation or admission, whichever is the later, or
 - iii. of a person transferred from a nursing home
- q. that is maternal or late maternal
- r. of a stillborn child, intrapartum (the period of care received during labour and delivery or childbirth), or infant death
- s. that occurred in a hospital or other health institution that is directly or indirectly related to a surgical operation or anaesthesia (including recovery from the effects of anaesthesia) or to any other medical, surgical or dental procedure, regardless of the length of time between the procedure and death
- t. due to an infection picked up in a healthcare setting
- u. where an allegation is made, or a concern has been expressed about the medical treatment provided to the deceased person or the management of his or her healthcare
- v. which may be as a result of an unconventional medical procedure or treatment
- w. that happens in:
 - i. an institution for the care and treatment of persons with a physical or mental disability, or
 - ii. any public or private institution for the care of elderly or ill persons, including a nursing home
- x. where the deceased person was at the time of his or her death, or immediately before his or her death, in State custody or detention
- y. of a child in care.

Appendix B

Protocol for determining homelessness in coronial files

1. **Homeless – Without accommodation:** can include sleeping rough or rooflessness.
2. **Homeless – Temporary or crisis accommodation:** hostels are the main form of temporary or crisis accommodation. As hostels don't suit everyone, e.g., families or those with medical/social needs, bed & breakfasts, hotels, and families' hubs may be provided.
3. **Homeless – Severely substandard or highly insecure:** this includes but is not limited to, accommodation that is severely below the minimum standards for housing with fire hazards or potential health risks (e.g., severe dampness, infestation), structurally unsafe buildings, a lack of sanitary facilities etc., and accommodation where the deceased does not have a contract and is at risk of losing his/her home at any time.
4. **Homeless – Unknown:** it is reported in the file that the deceased is homeless, but no further details are provided.
5. **Unstable:** includes temporary living arrangements. For example, staying with a friend on a temporary basis.
6. **Long-term accommodation (LTA):** LTA refers to where the deceased is in accommodation provided by a homeless agency (NGO or State agency) that is not on a day-to-day basis, i.e., it was provided to the deceased on a long-term basis. For example, living long term in a flat provided by the Simon community. People in this category were not included in this study as they were not homeless at the time of their death.

The category that most closely equated to a person's accommodation status at the time of their death was assigned to each case, based on the information available within each coronial file. This category may not reflect what is recorded in PASS for the deceased. For example, a person recorded as a rough sleeper in this study, may have used temporary or crisis accommodation some time prior to their death. In Dublin, there is considerable movement between rough sleeping and temporary or crisis accommodation in people who are chronically homeless⁴⁶.

Appendix C

Table 8 contains data on people who were housed in long-term or supported accommodation for people who were homeless at the time of their deaths, after a period of homelessness (length unknown). This cohort of 28 people, 23 men and 5 women, experienced a sudden, unexplained, violent, or unnatural death. As they were not homeless at the time of their death, they did not meet the inclusion criteria for this study and so figures are not included in the results above.

The deceased were accommodated either in 'Housing First' accommodation, or another unknown type of housing. Housing First aims to provide a person with their own secure accommodation as well as access to intensive and specialised support services, with a focus on people who are long-term homeless, or who are particularly vulnerable⁶⁸.

The median age of this population was 45 years. Most (60.7%) were located in Dublin at the time of their death. Over half (n = 16, 57.1%) were poisoning deaths, with polydrug use implicated in 12 of these deaths. In the 12 non-poisoning deaths, eight were linked to medical causes. A history of substance use (46.4%) and a history of a mental health issue (60.7%) were the most common co-morbidities.

Table 8: Demographics and characteristics of deaths in people who were housed in long-term or supported accommodation for people who were homeless

	Total*
No. of deaths, No. (%)	28 (100)
Male	23 (82.1)
Female	5 (17.9)
Demographics, No. (%)	
Age years, median	45.0
Unemployed status ^a	21 (75.0)
Location	
Dublin region	17 (60.7)
Cork region	5 (17.9)
Rest of Ireland	6 (21.4)
Cause of death, No. (%)	
Poisoning	16 (57.1)
Polydrug poisoning	12 (42.9)
Non-poisoning	12 (42.9)
Co-morbidities, No. (%)	
Substance use history	13 (46.4)
Alcohol dependence/misuse	12 (42.9)
Other drug use	
<i>Heroin</i>	13 (46.4)
<i>Cocaine (incl. crack cocaine)</i>	6 (21.4)
<i>Cannabis</i>	7 (25.0)
<i>Methadone</i>	5 (17.9)
<i>Benzodiazepines</i>	9 (32.1)
Ever injected drugs	6 (21.4)
Blood borne viruses	10 (35.7)
History of mental health issue ^b	17 (60.7)

*Percentages may not add up to 100 due to rounding

^a Refers to those unemployed, retired, or unable to work due to disability

^b Ascertained through depositions with family members or diagnosis from medical professionals contained in the coronial file

~ Fields where one or both subcategories have a value less than five – to ensure anonymity only the total numerical value is presented



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