Independent
Advisory Panel
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Assessing the Risk Factors Contributing to Premature Mortality among Detained Psychiatric Patients: A Scoping Review

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Introduction

Numerous studies have highlighted the elevated mortality rates among individuals detained in various custodial settings, including prisons, psychiatric hospitals, police custody, and Immigration Removal Centres (IRCs).

This disparity in premature mortality risk has raised significant concerns, as it points towards the need to better address the health needs of detained persons. While the recognition of this heightened risk is an important first step, our understanding of the underlying factors contributing to these premature deaths remains limited.

This scoping review aims to comprehensively map the existing literature on risk factors associated with premature mortality among those detained in hospital, which have some of the highest mortality risks. By systematically reviewing and synthesising research from both peer-reviewed journals and grey literature, we have aimed to identify and characterise the key risk factors that contribute to the observed increased mortality. This comprehensive overview will provide a foundation for future research and inform the development of targeted interventions aimed at reducing mortality risks.

The primary objectives of this scoping review were as follows:

1. To identify and synthesise existing research on risk factors associated with premature mortality among detained psychiatric patients.
2. To develop a comprehensive map of risk factors contributing to mortality.
3. To identify gaps in the existing literature and suggest areas for future research.
4. To contribute to a deeper understanding of factors that contribute to the elevated mortality rates among detained individuals.
5. To inform the development of evidence-based interventions aimed at reducing mortality risks in detained hospital settings.

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Executive summary

This scoping review systematically examined the current understanding of risk factors associated with premature mortality among detained individuals in hospital settings.

The paucity of research in this area underscores the need for further investigation to comprehensively investigate factors contributing to premature deaths in this population.

Our review identified a range of potential risk factors for premature mortality, and particularly suicide, among detained persons in hospital settings. Among clinical factors, a prior suicide attempt emerged as the most consistently replicated risk factor for suicide. Prior suicide attempts are a strong predictor of future suicidal behaviours and may also indicate underlying mental and emotional health problems that could elevate the risk of premature death from other causes.

Individual factors, such as a diagnosis of affective disorders, substance misuse, and a history of aggression, were also associated with increased suicide risk. These factors may contribute to elevated risk by increasing the likelihood of self-harm, violence, and unintentional injuries. Institutional factors, such as length of stay, involuntary admission, and a lack of access to appropriate care, were associations that need further exploration. These factors may contribute to suicide by increasing stress, social isolation, and a lack of access to healthcare provision. Despite the limitations of the current evidence, the identified risk factors suggest that preventive interventions targeting specific risk groups and conditions could reduce premature mortality in detained persons in hospital. These interventions could include suicide prevention programs, evidence-based treatments for psychiatric and substance use disorders, and therapies to promote social cohesion and well-being in detention settings.

But, fundamentally, the limited evidence available on risk factors for premature mortality among detained psychiatric patients highlights the need for further research in this area that can inform interventions and other prevention strategies at individual and institutional levels.

Methods

We searched Google Scholar and PubMed for available literature on risk factors for mortality for psychiatric patients who are detained in hospital. Our initial search strategy was focused on identifying risk markers for premature mortality specifically in those detained under the Mental Health Act. However, this specific search strategy did not yield any relevant findings.

We subsequently widened the search to identify articles covering either premature mortality or suicide among psychiatric inpatients more broadly. The search query included a combination of the following keywords: mortality, morbidity, suicide, risk factors, psychiatric hospital, psychiatric detention, mental health detention.

We selected any articles written in English that focused on suicide or premature mortality in the general inpatient psychiatric population. Excluded articles included two German-language articles, analyses that reported on attempted suicides (rather than completed suicide) as the outcome, articles including deaths in the post-discharge period, and duplicates.

By adopting this search strategy, we identified 10 studies in total, one on premature mortality and 9 focusing on suicide. In addition, we identified a further 7 studies that examined risk factors in specific patient sub-populations.

We extracted information regarding the geographical location, year, sample size, reported risk factors, effect sizes, and confidence intervals.

Table 1: Included studies

Outcome/First author	Title	Year	Country	Sample size
Mortality				
Myślicka	Cause-specific mortality and risk factors of death among inpatients of a psychiatric hospital	2021	Poland	15,997
Suicide				
Madsen	Predictors of psychiatric inpatient suicide: a national prospective register-based study	2012	Denmark	126,382
Roy	Suicide among psychiatric hospital in-patients	1995	Canada	37
Li	Inpatient suicide in a Chinese psychiatric hospital	2008	China	64
Neuner	Predicting inpatient suicides and suicide attempts by using clinical routine data?	2008	Germany	20,543
Qin	Suicide risk in relation to psychiatric hospitalization: evidence based on longitudinal registers	2005	Denmark	21,169
Engberg	Mortality and suicide rates of involuntarily committed patients	1994	Denmark	13,575
Meyfroidt	Suicide in Belgian psychiatric inpatients. A matched case-control study in a Belgian teaching hospital	2020	Belgium	37
Sharma	A closer look at inpatient suicide	1998	Canada	88
Powell	Suicide in psychiatric hospital in-patients	2000	UK	224

Results

Premature mortality

We identified one article examining premature mortality risk in the general population. The study found that the following risk factors were associated with the outcome: 3 sociodemographic (male sex, older age, being unemployed prior to being detained); and 9 clinical (hypertension, atherosclerosis, history of myocardial infarction, heart failure, cirrhosis, tuberculosis, anaemia, inflammation, TB, delirium not induced by alcohol or other psychoactive substances). Delirium had the largest effect size (hazard ratio of 19.0, [95% CI 14.5, 24.9]), followed by cirrhosis (4.4, [95% CI 1.55, 12.6]).

Table 2: Risk factors for premature mortality

Risk factor	Hazard Ratios [95% CI]
Sociodemographic factor	
Male sex	1.5 [1.1, 2.0]
Older age	1.1 [1.1; 1.1]
Unemployment	2.2 [1.0; 6.5]
Clinical factors	
Hypertension	2.2 [1.0; 6.5]
Atherosclerosis	1.6 [1.2; 2.3]
History of myocardial infarction	2.1 [1.1; 4.0]
Heart failure	2.2 [1.5; 3.1]
Cirrhosis	4.4 [1.6; 12.6]
TB	1.8 [1.1; 3.1]
Anaemia	0.9 [0.4; 2.1]
Inflammation	1.0 [1.0; 1.0]
Delirium not induced by alcohol or other psychoactive substances	19.0 [14.5; 24.9]

Note: CI=confidence intervals. Hazard ratios above 1 indicate an association between the studied factor and mortality.

Suicide

There were 9 published studies on risk factors for suicide by psychiatric inpatients. These reported a total of 35 risk factors, 12 of which were clinical, whilst 15 focused on individual historical factors, and the remaining 8 on institutional factors. Due to the low number of studies, we did not pool associations. Instead, we present each individual estimate in Table 3 below. Six of the 35 risk factors were replicated in at least 2 studies. The best replicated risk factor was a previous suicide attempt which was significantly associated with suicide in 5 studies. Two studies found a recent suicide attempt (within the past 7 days) to be strongly associated with later suicide risk (hazard/odds ratios of 5.0-5.2). Sex was examined in 5 studies, but the findings were conflicting. An affective diagnosis was found to be a risk factor in 2 studies.

The risk of suicide was found to be highest in the period immediately after hospital admission, with one study finding the risk to be most elevated in the day following admission. This risk elevation was subsequently reduced over subsequent days. Two additional studies found the first week following admission to be associated with the highest suicide risk. Finally, more hospitalisation episodes was also associated with elevated suicide risk.

One study focused specifically on an involuntarily committed patient population in Denmark. This covered 2 separate sample populations, finding short length of stay to be common across both; a nonpsychotic main diagnosis, male sex, and age 35 years or older to be significant in one of the samples; and being detained based on “dangerousness” to be significant in the other.

Many of these replicated risk factors were also found in clinical subpopulations. Demographically, male sex was reported as a risk factor for suicide in psychotic and non-psychotic depression patients and for adolescent patients, while previous suicide attempts were found to be a risk factor for suicide among patients with a major depressive disorder, schizophrenia, and a primary diagnosis of a personality disorder. Another similarity was that the highest risk was found in the first week in older psychiatric patients (over 60).

Table 3: Risk factors for suicide

Risk Factor	Effect size (95% CI or p)				
	Study I	Study II	Study III	Study IV	Study V
Bachelor's degree level education	HR 1 (primary school education 0.4 (0.3, 0.6); vocational training 0.5 (0.4, 0.8)				
Male sex	HR 2.6 (2.0, 3.3)	No difference found	No difference found	Female: RR 22.7 (21.5, 23.9), Male: RR 14.1 (13.5, 14.7) for men	RR 1.7 (1.2, 2.5)
Older age	HR 1.2 (1.0, 1.3) when moving up each age bracket				
Personality disorder as a secondary diagnosis	HR 1.6 (1.0, 2.5)				
Affective diagnosis (rather than schizophrenic, SUD, stress-related, or personality)	HR 1.6 (1.0, 2.5)	Male: RR 1.9 (1.6, 2.2), Female: RR 1.6 (1.4, 1.9)			

Risk Factor	Effect size (95% CI or p)				
	Study I	Study II	Study III	Study IV	Study V
Schizophrenia diagnosis	75.7% among those who died by suicide vs. 32.4% among controls with a psychiatric diagnosis (χ^2=12.3, df=1, p<0.001)				
Personality disorder	2.7% among those who died by suicide vs. 27.0% among controls with a psychiatric diagnosis (χ^2=8.6, df=1, p=0.003)				
Guilty thoughts	OR 11.1 (1.5, 86.2)				
Depressive mood	OR 4.8 (1.6, 14.1)				
Severe side effects of psychopharma-cotherapy during admission	OR 4.3 (1.6, 11.7)				
Resistance to pharmacological treatment	OR 8.1 (3.4, 19.6)				
Non-psychotic patients	RR 1.6 (1.1, 2.3)				
Hopelessness	OR 0.14 (0.03, 0.61)				
Presence of delusions	OR 2.9 (1.3-6.6)				
Chronic mental illness	OR 2.9 (1.4-6.2)				
Recent contact with a private psychologist	HR 1.9 (1.0, 2.5)				
Recent suicide attempt before admission to hospital (last 7 days)	HR 5.0 (3.6, 7.0)	OR 5.2 (1.5, 18.0)			

Risk Factor	Effect size (95% CI or p)				
	Study I	Study II	Study III	Study IV	Study V
Any suicide attempt before admission	HR 1.9 (1.4, 2.6)	62.2% among those who died by suicide vs. 35.1% among inpatient care controls (χ^2=5.4, df=1, p=0.02)	OR 4.3 (2.2, 8.7)	72.7% among those who died by suicide vs. 40.9% among inpatient care controls (χ^2=9.4, df=1, p=0.002)	OR 2.2 (1.1-4.5)
Alcoholism	0% among those who died by suicide vs. 10.8% among controls with a psychiatric diagnosis (χ^2=4.2, df=1, p=0.04)				
Lived alone prior to admission	70.3% among those who died by suicide vs. 43.2% among inpatient care controls (χ^2=5.5, df=1, p=0.02)				
Recent suicidal ideations before admission (last month)	OR 3.3 (1.2, 9.2)				
Supportive psychotherapy before admission	OR 4.1 (1.4, 11.9)				
Substance abuse	RR (1.6 for female sex)				
Family history of psychiatric problems	77.3% among those who died by suicide vs. 59.1% among inpatient care controls (χ^2=5.1, df=1, p=0.02)				
Family history of suicide	OR 5.0 (1.2, 21.7)				
Planned suicide attempt	OR 11.8 (1.3, 111.3)				
Recent bereavement	OR 4.5 (1.2, 16.8)				
Not being in the hospital	58% occurred while on leave or having absconded				

Risk Factor	Effect size (95% CI or p)				
	Study I	Study II	Study III	Study IV	Study V
Risk drops as you stay longer (highest on the first day)	First week after admission highest risk	First week and first month	First day highest risk		
Involuntary admission	70.3% among those who died by suicide vs. 43.2% among inpatient care controls (χ^2=5.5, df=1, p=0.02)				
Number of hospitalisations	More in the suicide group (no analysis done)	Correlated with risk			
Committed due to danger	RR 2.5 (1.3, 4.8)				
Short length of stay (<14 days)	RR 1.7 (1.1, 2.4)	RR 2.6 (1.6, 4.3)			
Just before/ during the weekend	57% of suicides on Friday, Saturday or Sunday				
Risk noted in their patient notes in the week before death	15.9% among those who died by suicide vs. 2.3% among inpatient care controls (χ^2=10.7, df=3, p=0.01)				

ES – Effect Size (95% Confidence Interval); df – Degrees of freedom; HR – Hazard Ratio; χ^2 – Chi Squared; OR – Odds Ratio; P – P-value (P<0.05 were considered statistically significant); RR – Risk Ratio

Discussion

This scoping review systematically examined the current understanding of risk factors associated with premature mortality among detained individuals in hospital settings.

The paucity of research in this area underscores the need for further investigation to comprehensively investigate factors contributing to premature deaths in this population. Our review identified a range of potential risk factors for premature mortality, and particularly suicide, among detained individuals. These factors can be broadly categorised into sociodemographic, clinical, patient history, and institutional factors. Among the clinical factors, a prior suicide attempt emerged as the most consistently replicated risk factor for suicide. Prior suicide attempts are a strong predictor of future suicidal behaviours and may also indicate underlying mental and emotional health issues that could elevate the risk of premature death from other causes.

Patient history factors, such as affective disorders, substance misuse, and a history of aggression, were also associated with increased suicide risk. These factors may contribute to elevated risk by increasing the likelihood of self-harm, violence, and unintentional injuries. Institutional factors, such as length of stay, involuntary admission, and a lack of access to appropriate care, were potential risk factors. These factors may contribute to suicide by increasing stress, social isolation, and a lack of access to necessary healthcare.

Despite identifying several potential risk factors, our review also highlighted the limited replication of these factors across different studies. This suggests that the relationship between these factors and mortality risk may be complex and influenced by various contextual factors.

Confounding factors, such as differences in study populations, measurement methods, and statistical analyses, may contribute to inconsistencies in findings. Additionally, context-specific conditions, such as the specific detention setting, national healthcare systems, and cultural norms, may influence the presentation of risk factors and their contribution to mortality rates.

This scoping review has several limitations including a limited number of studies and the heterogeneity of the populations included in these studies. Thus, some caution is required before drawing definitive conclusions about the risk factors, and causality should not be inferred without further triangulation of research findings.

Future research should therefore focus on conducting larger and more rigorously designed studies with standardised measurement methods and consistent statistical analyses. Additionally, studies should specifically focus on detained psychiatric populations and account for the unique contextual factors that may influence premature mortality risk in these settings.

Despite the limitations of the current evidence, the identified risk factors suggest that preventive interventions targeting specific risk groups and conditions could reduce premature mortality in detained individuals. These interventions could include suicide prevention programs, evidence-based treatments for psychiatric and substance use disorders, and therapies to promote social cohesion and well-being in detention settings. Funding agencies should prioritise this area.

Conclusion

The limited evidence available on risk factors for premature mortality among detained psychiatric patients highlights the need for further research. Future studies should aim to replicate findings across diverse populations and settings to strengthen the evidence base. Additionally, interventions targeting identified risk factors and policy measures to address the unique needs of detained individuals have the potential to reduce premature mortality in this vulnerable population.

About the Independent Advisory Panel on Deaths in Custody

The Ministerial Council on Deaths in Custody (MCDC) formally commenced operation on 1 April 2009 and is jointly sponsored by the Ministry of Justice, the Department of Health and Social Care, and the Home Office. The Council consists of three tiers:

- Ministerial Board on Deaths in Custody
- Independent Advisory Panel on Deaths in Custody (IAPDC)
- Practitioner and Stakeholder Group

The remit of the IAPDC (and overall of the Council) covers deaths, natural and self-inflicted, which occur in prisons, in or following police custody, immigration detention, the deaths of residents of approved premises, and the deaths of those detained under the Mental Health Act (MHA) in hospital. The principles and lessons learned as part of this work also apply to the deaths of those detained under the Mental Capacity Act in hospital.

The role of the IAPDC, an advisory non-departmental public body, is to provide independent advice and expertise to Ministers, senior officials, and the Ministerial Board. It provides guidance on policy and best practice across sectors and makes recommendations to Ministers and operational services. It assists Ministers to meet their human rights obligations to protect life. The IAPDC's aim is to bring about a continuing and sustained reduction in the number and rate of deaths in all forms of state custody in England and Wales.

Lynn Emslie chairs the IAPDC. The other members are:

- Raj Desai, barrister, Matrix Chambers
- Professor Seena Fazel, professor of Forensic Psychiatry, University of Oxford
- Dr Jake Hard, Associate Clinical Director for the South West Prisons, Oxleas NHS Foundation Trust
- Pauline McCabe OBE, international criminal justice advisor and former Prisoner Ombudsman for Northern Ireland

Further information on the IAPDC can be found on its website: **https://www.iapondeathsincustody.org.**

For more information on this paper – or on the IAPDC more generally – please contact **MinisterialCouncilonDeathsinCustody@justice.gov.uk.**

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