

AN ANALYSIS OF FACTORS ASSOCIATED WITH SUICIDE AMONG JUSTICE-INVOLVED ILLINOIS VIOLENT DEATH DECEDENTS



ILLINOIS CRIMINAL JUSTICE INFORMATION AUTHORITY
CENTER FOR JUSTICE RESEARCH AND EVALUATION

H. DOUGLAS OTTO, RESEARCH ANALYST

Abstract: Suicide is one of the leading causes of death in the United States both in the general population and among people involved in the justice system. Research suggests suicide rates among those detained in jail and prison have increased in recent years. For this reason, it is important to understand and identify potential suicide risk factors among justice-involved populations. This study utilized violent death and arrest data to examine justice-involved suicide (n = 646) and homicide (n = 1,196) decedents and non-justice-involved suicide decedents (n = 976). The group comparisons were based on demographics, arrest records, and mental health and substance use variables. A higher proportion of suicide decedents compared to homicide decedents were found to be White and married, have a higher mean age, and suffer from mental health/substance use issues. Fewer significant differences were found between suicide decedents with and without prior arrest records. Given the identified factors associated with suicide, practices such as mental health/substance use treatment, pharmacological interventions, cognitive behavioral therapy, and psychological autopsies may help to prevent suicide among justice-involved individuals. Future research should evaluate interventions for justice-involved individuals at risk for suicide outside of jails or prisons.

Introduction

Suicide is one of the leading causes of death in the United States, ranking 10th every year for the past decade.¹ Research suggests that suicide rates across the United States increased by about 35% from 2000 to 2018.² In Illinois, this rate of increase was even greater, with a roughly 45% jump during that time (from 8.06 per 100,000 in 2000 to 11.68 per 100,000 in 2018).³

Suicide may be even more common among justice-involved populations. One meta-analysis of studies comparing suicide rates among formerly imprisoned people to those of the general population found the likelihood of suicide among formerly imprisoned people was significantly higher.⁴ It was estimated that 10% to 18% of all suicides with a known cause occurred in the context of criminal legal troubles or court contacts (i.e., resulting at least in part from stress due to interaction with the criminal justice system).⁵

Suicide deaths among those in the in the custody of jails also are high. The U.S. Bureau of Justice Statistics found suicide incidents accounted for about one-third of all jail deaths in 2013 and was the leading cause of jail death from 2000 to 2013.⁶ Suicide appears to be a greater concern for jail detainees than state prisoners at 46 and 15 suicide deaths per 100,000, respectively, in 2013.⁷

This study attempted to answer the following research questions using Illinois public health data and criminal records:

- What, if any, characteristic differences exist between suicide decedents with and without prior involvement in the criminal justice system?
- What, if any, characteristic differences exist between justice-involved homicide and suicide decedents?

Literature Review

Suicide Risk of Justice-Involved Individuals

Several risk factors are cited for suicide in justice-involved populations. A study using self-reported suicide attempt data found suicide attempts were more common among people with multiple arrests within the previous year than those with one or no arrests.⁸ Another study found self-reported suicide attempts were more strongly related to recent arrests than to probation or parole status.⁹ While prior research found people placed on probation or parole may be at a higher risk for suicide, Bryson and colleagues found that after controlling for overlap between prior arrests, probation, and parole, only prior arrests significantly increased the likelihood of attempting suicide.¹⁰

Research indicates white male individuals who are justice-involved may be more likely than others to commit suicide. The U.S. Bureau of Justice Statistics reported that male detainees died by suicide more frequently than females in local jails and state prisons between 2000 and 2011.¹¹ Further, the report noted White jail detainees had higher suicide rates than any other race or ethnicity; older jail inmates also had higher suicide rates. These findings were consistent among

state prisoners. One meta-analysis found being White, male, and married all increased the odds of suicide for prisoners in the United States and other countries.¹² The prevalence of mental health and substance use disorders has also been linked to suicide risk among justice-involved populations.¹³ Moreover, justice-involved individuals with co-occurring mental health and substance use disorders have shown higher overall suicide risk levels than those without co-occurring disorders.¹⁴

Research has not identified links between offense types and suicide risk among justice-involved individuals. One study found that people with histories of committing violent offenses were not more likely than those with property or drug offenses to self-report suicide attempts.¹⁵ Another study using a sample of prisoners found that having a violent offense conviction on their records did not increase suicide risk.¹⁶

Justice Involvement of Suicide and Homicide Decedents

Research shows that people with a history of involvement in the criminal justice system are at an elevated risk both suicide and homicide victimization.¹⁷ Additionally, research consistently shows people involved in the justice system tend to have been victims of violent crime themselves. Exposure to violence can lead to trauma that influences criminal behavior.¹⁸ Moreover, trauma can impair decision-making capabilities and result in conditions, such as post-traumatic stress disorder (PTSD) or substance use disorders, which are risk factors for suicide.¹⁹

While previous exposure to violence among justice-involved populations may be linked to an increased risk of violent death, research suggests that certain demographic factors and other characteristics among justice-involved populations may be associated with suicide as opposed to homicide, and vice versa.²⁰ These comparisons may help determine which characteristics may be risk factors for homicide or suicide.

Methodology

Data Sources

Illinois Violent Death Reporting System (IVDRS), Illinois Criminal History Record Information (CHRI) System, and Illinois Department of Corrections (IDOC) data were used to examine this study's research questions.

Illinois Violent Death Reporting System

The IVDRS is part of the National Violent Death Reporting System, operated by the U.S. Centers for Disease Control and Prevention. IVDRS is housed at Northwestern University's Buehler Centre for Health Policy and Economics Feinberg School of Medicine. This surveillance system combines data from death certificates, coroners/medical examiners, law enforcement officials, and toxicology and autopsy reports. The IVDRS collects data on all violent deaths, including those resulting from homicide, suicide, legal intervention, unintentional firearm injury, and those for which the causes are undetermined, in participating Illinois counties. All IVDRS variables related to mental health, substance use, and whether a death was determined to have

occurred as a result of a recent criminal legal problem²¹ are based on combined information from coroners/medical examiners and law enforcement officials.

In 2017, IVDRS collected data from 16 Illinois counties,²² accounting for 81% of all Illinois violent deaths. ICJIA researchers matched those who died due to homicide in Illinois from the IVDRS in 2015 and 2016 to two criminal justice data sets, CHRI and IDOC.

Illinois Criminal History Record Information System

ICJIA researchers used CHRI data as the source of information on prior arrest histories for the IVDRS sample. Court disposition codes also were used to determine if the individual had an open court case at the time of death. ICJIA researchers have access to all data posted to the CHRI system through a cooperative agreement with the Illinois State Police. These data include all posted fingerprint-based arrests and associated arrest charges submitted by local police agencies and basic demographic information. Subsequent court dispositions and sentencing information submitted by the circuit court clerk for those arrests also are accessible. Individuals whose data is captured in the CHRI system are assigned a unique state identification number (SID). These numbers are used to identify all arrests associated with the individuals' fingerprints in the system, resulting in their arrest records. Records are limited to arrests and convictions that occurred in Illinois.

Illinois Department of Corrections (IDOC)

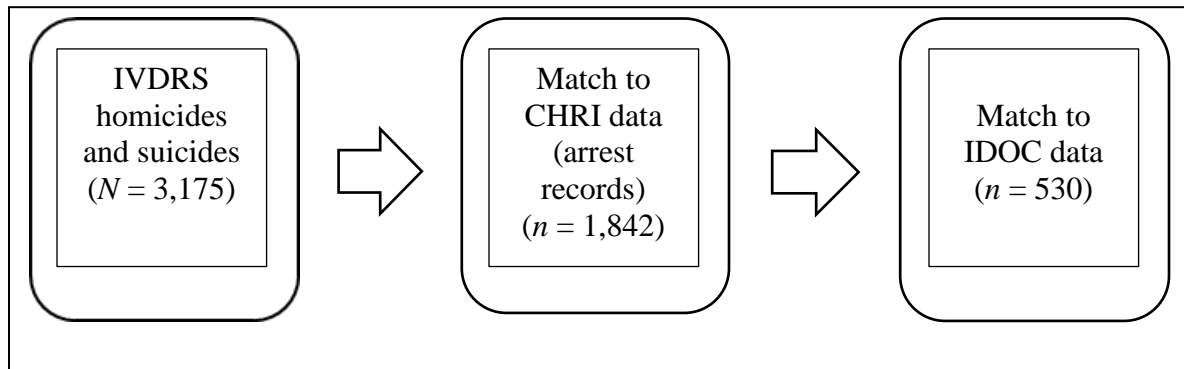
ICJIA researchers used IDOC data to determine whether individuals had any history of incarceration in IDOC state prison facilities. IDOC data include individual demographics, holding offenses, sentence information, and personal identifiers. SIDs and names were used to link individuals' IDOC records with their corresponding CHRI records.

Study Design and Procedure

In the total sample of individuals who died of homicide and suicide ($N = 3,175$), IVDRS subject names and dates of birth were matched against the CHRI data to determine which individuals had a prior arrest record in Illinois. A total of 1,842 records were matched (58%); 27 individual records were manually reviewed and accepted as likely matches after rectifying certain issues, such as reversed last and first names and misspellings. The IVDRS records were matched to IDOC admission, exit, and parole files. This matching process included both names and dates of birth, as well as matching SIDs associated with the individuals' CHRI records. A total of 530 individuals from the IVDRS system (17%) were matched to their IDOC records. After the same manual methodological review for IDOC files, 27 of the 1,499 prison admission records were eliminated (2%), as were 28 of the 1,528 prison exit records (2%). Each of these matched individuals had at least one IDOC admission and exit record after the data quality method was applied. All individuals initially matched to IDOC records retained at least one IDOC admission record after manual methodological review was conducted. All individuals included in the final sample were 18 years old or older. See Figure 1 for data flow.

Figure 1

Data flow of IVDRS Match to Arrest Records



Sample

The total sample represented 3,175 adults (age 18 and older) who suffered a violent death (homicide and suicide) in Illinois from 2015 and 2016, as recorded by IVDRS. The sample included 1,258 Illinois records collected in 2015 from six counties and 1,917 Illinois records collected from 16 counties in 2016.²³ The two years were selected for inclusion as they provided the most current data at the start of the project. The sample included 1,553 homicide decedents and 1,622 suicide decedents.

Analysis

I used bivariate analyses (chi-square tests and independent t-tests) to test for differences between homicide and suicide decedents on demographic, mental health and/or substance use-related, and criminal history variables, with a significance indicated at $p < .05$. I used IBM SPSS Statistics Version 21.0 software to conduct all descriptive and bivariate analyses. Fisher's Exact tests were used in place of chi-square tests for variables in which at least one category had an observed frequency equal to or less than five. For all independent t-tests, equal variances were not assumed.

A chi-square test measures the association between two categorical variables such as gender or race between groups (in this study, groups based on manner of death and criminal history of suicide decedents). An independent t-test compares the means between two independent groups on the same continuous variable such as age or number of prior arrests (in this study, groups based on manner of death and criminal history of suicide decedents). A p-value is a measure of the probability that an observed difference could have occurred just by random chance. The lower the p-value, the greater the statistical significance of the observed difference.

Study Limitations

There are several limitations to note. First, using prior arrests as a measure for criminal history has its limitations, as some criminal activity may not result in arrest; some individuals may have

been inaccurately considered to be clear of a criminal history. Additionally, some individuals with arrest records may have been falsely accused, had their cases dismissed, were not prosecuted, or were found not guilty. Second, the findings are limited in their generalizability, as the data used in this study only included decedents from 2015 to 2016 and only decedents from 16 Illinois counties. Additionally, the data in this study were limited geographically, as not all Illinois counties reported data to IVDRS.

Study Findings

Characteristics of Justice-Involved Suicide and Homicide Decedents

The data showed a slightly higher number of justice-involved homicide decedents compared to suicide decedents (at 1,196 and 646, respectively). Table 1 offers demographics of justice-involved homicide and suicide decedents. In total, 75% of suicide decedents and nearly 90% of homicide decedents were male. Suicide decedents had a higher mean age than homicide decedents and a higher percentage were White compared to homicide decedents. Finally, more homicide decedents were never married compared to suicide decedents.

Table 1

Demographics of Justice-Involved Homicide and Suicide Decedents

Variable	Homicide decedents		Suicide decedents		X^2	p	Φ
	n	%	n	%			
Sex							
Male	1,383	89.1	1,235	76.1	91.5	< .001	.170
Female	170	10.9	387	23.9			
Race							
White	384	87.4	1,418	87.4	1,270.7	< .001	.633
Non-White	1,169	12.6	204	12.6			
Marital status ($n = 3,049$)							
Never married	1,187	76.4	610	38.8	546.3	< .001	.423
Divorced or separated	91	5.9	363	23.1			
Married/civil union/ widowed	199	12.8	599	38.1			

Note. ICJIA analysis of 2015-16 IVDRS and CHRI data. The total sample was 3,175 with 1,553 homicide decedents and 1,622 suicide decedents.

All demographic variables had a statistically significant association with cause of death (i.e., suicide vs. homicide). I found the strongest association between the decedent's race and cause of death. Specifically, White individuals had a significantly higher proportion of deaths attributed to suicide (over 85%) compared to non-White individuals (under 15%). The Φ coefficient suggests the association between race and cause of death to be a moderate to strong association. The

decedents' sex had a statistically significant association with cause of death, but the strength of the association was weak. I found an association, although weak, between marital status and cause of death. A higher proportion of suicide decedents were married or divorced at the time of death, compared to homicide decedents (at 52% and 16%, respectively).

An independent *t*-test comparing the ages of homicide decedents and suicide decedents found that suicide decedents ($M = 47.5, SD = 17.3$), compared to homicide decedents ($M = 31.7, SD = 13.0$) had a higher mean age, $t(181.5) = 29.0$.

Table 2 shares information on mental health and substance use disorders of justice-involved homicide and suicide decedents. Overall, more suicide decedents suffered from mental health and substance use disorders than homicide decedents.

Table 2*Mental Health and Substance Use of Justice-Involved Homicide and Suicide Decedents*

Variable	Homicide decedents		Suicide decedents		X^2	p	Φ
	n	%	n	%			
Current mental health problem							
Yes	10	0.8	276	42.7	561.1	< .001	.552
No	1,186	99.2	370	57.3			
Current mental health/substance use treatment participant							
Yes	5	0.4	180	27.9		< .001	
No	1,191	99.6	446	72.1			
History of mental health/substance use treatment							
Yes	6	0.5	221	34.2	441.1	< .001	.489
No	1,191	99.5	425	65.8			
History of suicidal thoughts, plans, or attempts							
Yes	0	0.0	176	27.2		< .001	
No	1,196	100.0	470	72.8			
Alcohol dependence problem							
Yes	11	0.9	157	24.3	276.7	< .001	.388
No	1,185	99.1	489	75.7			
Blood-alcohol content level at time of death ($n = 1,422$)							
Legally intoxicated	237	23.4	165	40.2	40.7	.001	.169
Below legal limit	775	76.6	245	59.8			
Non-alcohol substance use problem							
Yes	34	2.8	126	19.5	146.8	.001	.282
No	1,162	97.2	520	80.5			

Note. ICJIA analysis of 2015-16 IVDRS and CHRI data. The total sample was 3,175 with 1,553 homicide decedents and 1,622 suicide decedents. Fisher's exact test used for variables with frequencies less than or equal to five in at least one cell.

All variables related to mental health and/or substance use were found to have statistically significant associations with cause of death among justice-involved decedents. A larger proportion of suicide decedents had mental health problems at the time of death compared to homicide decedents. Suicide decedents more often had a history of participation in mental health/substance use treatment, which was the second strongest association with cause of death. Being a participant of mental health/substance use treatment was similarly associated with dying from suicide as opposed to homicide.

Among the variables related specifically to substance use, having an alcohol dependence problem showed the strongest association with cause of death, though the strength of association was relatively weak. The data indicated a larger proportion of decedents with an alcohol dependence problem died from suicide compared to homicide. A higher proportion of suicide decedents was found to also have a non-alcohol substance use problem, but the strength of association was, again, relatively weak. A significantly higher proportion of suicide decedents had a blood-alcohol content higher than the legal limit at the time of death, though the association with cause of death was the weakest.

Table 3 displays descriptive prior arrest data on the decedents sampled. A larger proportion of homicide decedents had at least one arrest prior to death compared to suicide decedents.

Table 3
Criminal Histories of Homicide and Suicide Decedents

Variable	Homicide decedents		Suicide decedents		X^2	p	Φ
	n	%	n	%			
Prior arrests ($n = 3,175$)							
Yes	1,196	77.0	646	39.8	450.4	< .001	.377
No	356	23.0	976	60.2			
Prior admission to IDOC ($n = 1,842$)							
Yes	473	39.5	56	8.7	195.4	< .001	.326
No	723	60.5	590	91.3			
Prior arrest type ($n = 1,842$)							
Property	140	11.7	111	17.2	131.8	< .001	.268
Person	1,191	99.5	64	9.9			
Drug	226	18.9	82	12.7			
Sex	27	2.3	23	3.6			
DUI	44	3.6	104	16.1			
Domestic violence	95	7.9	74	11.5			
Weapons	56	4.7	22	3.4			
Other	462	38.6	166	25.7			
Death attributed to recent criminal legal problems							
Yes	0	0.0	93	5.7		< .001	
No	1,553	100.0	1,529	94.3			

Note. ICJIA analysis of 2015-16 IVDRS and CHRI data. The total sample was 3,175 with 1,553 homicide decedents and 1,622 suicide decedents.

The data revealed a statistically significant but weak association between prior arrests for homicide decedents and suicide decedents. Seventy-seven percent of homicide decedents had been arrested at least once compared to 40% of suicide decedents. Homicide decedents also had a significantly higher mean number of prior arrests ($M = 13.7$, $SD = 17.3$) compared to suicide

decedents ($M = 4.8$, $SD = 6.0$), $t(1,772.8) = -19.4$. Additionally, a higher proportion of homicide decedents had been admitted to IDOC facilities at least once compared to suicide decedents.

The offense type of the last arrest prior to death was found to have a statistically significant relationship with cause of death, though the strength of the association was weak. Drug offenses were the most common cause of last arrest prior to death among homicide decedents (Table 3). For suicide decedents, property offenses were the most common. A significantly higher proportion of people who died as a result of homicide had at least one prior admission to IDOC (about 40%) than those who died as result of suicide (about 9%); this association was weak to moderately strong. I also found that whether or not the death was attributed to recent criminal legal problems was significantly associated with the cause of death, although the strength of this association was also weak.

Criminal History of Suicide Decedents

Suicide decedents who had been arrested at least once prior to death were compared to suicide decedents with no prior arrests. Table 4 displays descriptive statistics between demographic variables and the arrest record of suicide decedents.

There was a weak but statistically significant association between suicide decedents' arrest records and whether or not suicides were attributable to recent criminal legal problems, $X^2(1, N = 1,622) = 22.6$, $p < .001$, $\Phi = .118$.

Table 4*Demographics of Suicide Decedents With and Without an Arrest Record*

Variable	Suicide decedents with no prior arrests		Suicide decedents with at least one prior arrest		X^2	p	Φ
	n	%	n	%			
Sex							
Male	665	68.1	570	88.2	86.5	< .001	.231
Female	311	31.9	76	11.8			
Race							
White	868	88.9	550	85.1	5.1	.02	.056
Non-White	108	11.1	86	14.9			
Marital status ($n = 1,572$)							
Never married	307	32.6	303	48.2	61.3	< .001	.197
Divorced or separated	205	21.7	158	25.1			
Married/civil union/ widowed	431	45.7	168	26.7			

Note. ICJIA analysis of 2015-16 IVDRS and CHRI data. The total sample was 1,622 suicide decedents (976 suicide decedents with no prior arrests and 646 suicide decedents with at least one prior arrest.)

A higher proportion of suicide decedents with at least one prior arrest were male compared to suicide decedents with no prior arrests. Suicide decedents with no prior arrests had a higher mean age ($M = 50.1$, $SD = 18.6$) compared to suicide decedents with at least one prior arrest ($M = 43.5$, $SD = 14.4$), $t(1,580.5) = 8.0$. Marital status had a statistically significant association with arrest records among suicide decedents, though the strength of this association again was weak. A higher proportion of suicide decedents with at least one prior arrest were found to have never married. Among the demographic variables, race was the only variable not to have a statistically significant relationship with arrest records of suicide decedents at a .01 confidence level, suggesting no significant differences by race.

Chi-square tests were performed to analyze the arrest records of suicide decedents compared to variables related to mental health and substance use (Table 5). Several variables had no statistical association with the arrest records of suicide decedents (e.g., current mental health problem, current mental health/substance use treatment participant, history of mental health/substance use treatment). A higher proportion of suicide decedents with at least one arrest prior to death were found to have a history of suicidal thoughts, plans, or attempts compared to those without any prior arrests, though the strength of this association was very weak.

Variables related to substance use had slightly stronger associations with the prior arrest records of suicide decedents. Having an alcohol dependence problem, a blood-alcohol content level above the legal limit at the time of death, and a non-alcohol substance use disorder were all

significantly associated with suicide decedents' criminal histories. A higher proportion of suicide decedents with an alcohol dependence problem, non-alcohol substance use disorder, or a blood-alcohol content level above the legal limit at the time of death had at least one prior arrest on their records.

Table 5
Mental Health and Substance Use of Suicide Decedents With and Without an Arrest Record

Variable	Suicide decedents with no prior arrests		Suicide decedents with at least one prior arrest		X^2	p	Φ
	n	%	n	%			
Current mental health problem							
Yes	411	0.8	276	42.7	.06	.807	.006
No	565	99.2	370	57.3			
Current mental health/substance use treatment participant							
Yes	267	27.4	180	27.9	.05	.823	.122
No	709	72.6	446	72.1			
History of mental health/substance use treatment							
Yes	324	33.2	221	34.2	.18	.672	.011
No	652	66.8	425	65.8			
History of suicidal thoughts, plans, or attempts							
Yes	211	21.6	176	27.2	6.8	.01	.065
No	765	78.4	470	72.8			
Alcohol dependence problem							
Yes	95	9.7	157	24.3	62.9	< .001	.197
No	881	90.3	489	75.7			
Blood-alcohol content level at time of death ($n = 980$)							
Legally intoxicated	163	28.6	165	40.2	14.5	< .001	.169
Below legal limit	407	71.4	245	59.8			
Non-alcohol substance use problem							
Yes	54	5.5	126	19.5	76.9	< .001	.218
No	922	94.5	520	80.5			

Note. ICJIA analysis of 2015-16 IVDRS and CHRI data. The total sample was 1,622 suicide decedents (976 suicide decedents with no prior arrests and 646 suicide decedents with at least one prior arrest.)

Implications for Policy and Practice

Screen and Address Those Most at Risk for Suicide

This study found demographic distinctions among justice-involved people who died as result of suicide versus homicide. A higher proportion of suicide decedents in this study were found to be White, older, married/separated or divorced, and suffering from mental health and/or substance use problems. The study revealed moderately strong associations between these variables and cause of death.

The study also showed a significant and strong association between race and cause of death among justice-involved persons. A greater proportion of suicide decedents was White; a greater proportion of homicide decedents was non-White. One study found that certain religious cultural beliefs or attitudes within racial demographics may reduce risk for suicide. Specifically, Black Americans were more likely than White Americans to believe that God controls one's life and that only God can decide to take a life.²⁴ Other research shows that cases of suicide among non-White decedents may be misclassified as undetermined significantly more than cases involving White decedents. Data suggest that White suicide decedents leave suicide notes (a key piece of evidence in determining manner of death) more frequently than those of Black or Hispanic descent.²⁵

Comparisons between suicide decedents with and without prior criminal histories revealed few significant differences. Correctional facility administrators, probation and parole administrators, and other case workers and service providers can try to limit access to lethal means for suicide, refer clients to pharmacological interventions (i.e., antidepressant medication), and offer cognitive behavioral therapy (CBT).²⁶ CBT is an evidence-based practice that can improve outcomes for those who are justice-involved, including reducing suicide risk.²⁷

A total of 40% of the suicide decedents sampled had prior contact with the justice system (one or more arrests). This underscores the need for suicide risk screening within criminal justice settings. Individuals determined to be suffering from co-occurring mental health and substance use disorders may be screened for suicide risk as part of the process. The evidence-based [Columbia-Suicide Severity Rating Scale \(C-SSRS\)](#) is a screening tool adaptable to many institutional settings, including correctional facilities.

Address Mental Health and Substance Use Disorders

A higher proportion of suicide decedents were found to have a history of mental health and/or substance use disorders at the time of death. This is consistent with results found in previous research, as people suffering from mental health and/or substance use issues are at an elevated risk for suicide.²⁸ Mental health issues can exacerbate feelings that lead to suicide, such as hopelessness and anxiety.²⁹ These feelings can be further heightened by the effects of drugs and alcohol and impair decision-making capabilities.³⁰

A significantly higher proportion of suicide decedents with at least one prior arrest were found to have issues related to alcohol and other substance use compared to suicide decedents without

prior arrest histories. Consistent with prior research showing a strong association between suicide and substance use,³¹ this finding suggests treatment for substance use disorders may be a particularly important component of suicide prevention among justice-involved populations. A higher proportion of suicide decedents also were in treatment for mental health and/or substance use disorders at the time of death, which is consistent with prior research showing that people entering treatment for substance use may be experiencing peak levels of substance dependency and depressive moods and thus increased suicide risk.³² Substance use treatment providers should be trained to identify suicide risk and implement suicide prevention measures to help reduce suicide among this vulnerable population.³³

A higher proportion of suicide decedents who were arrested at least once prior to death had a history of suicidal thoughts, plans, or attempts. One study found that aggressive behavior was significantly correlated to suicide attempts among a sample of justice-involved people.³⁴ CBT programming is shown to reduce levels of aggression among incarcerated individuals and may also stem suicide risk.³⁵

Employ Evidence-Based Suicide Prevention Efforts in Jails and Prisons

A large body of research has identified effective suicide prevention efforts in incarcerated settings. One recent review of literature on the topic noted several recommendations for suicide prevention:

- Continuously conduct suicide risk assessment for all incarcerated people.
- Crisis response planning.
- Promote positive interaction and contact between incarcerated people and mental health providers and staff.
- Provide annual suicide prevention training for correctional and mental health staff.
- Perform psychological autopsy.³⁶

Psychological autopsy is the process of constructing a complete picture of a suicide decedent's mental and physical health, personality, and social experiences to better understand the circumstances and motivation surrounding the suicide.³⁷ particularly useful for examining how certain risk factors might lead to suicide. Prison, jail, and other criminal justice practitioners can use this information to administer individualized, evidence-based intervention programming or services to reduce that risk. Evidence-based intervention programs should be:

- Based on an understanding of local needs, problems, and assets.
- Guided by community stakeholders and research-based theories.
- Planned using a logic model that demonstrates how results will be achieved.
- Drawn from research on related programs that have established program effectiveness.³⁸

Resources for Establishing Suicide Prevention Programs for Justice-Involved Individuals

[Guide to Developing and Revising Suicide Prevention Protocols within Jails and Prisons](#)

[Guiding Principles to Suicide Prevention in Correctional Facilities](#)

Video: [Basics and Beyond: Suicide Prevention in Jails](#)

Further Research Suicide Risk of Justice-Involved Populations

While suicide is more prevalent among justice-involved populations,³⁹ much of the current research on these populations is focused on people who are incarcerated. More research is needed to determine best practices for suicide prevention among people in the community. In addition, incarceration may result in long-term psychological impairment,⁴⁰ so it is necessary to investigate how that possibility might relate to suicide risk beyond incarceration.

Suicide Prevention Resources

National Suicide Prevention Lifeline

1-800-273-TALK (8255)

Spanish/Español: 1-888-628-9454

Crisis Text Line

Text HOME to 741-741

Suicide Prevention Resource Center

National Institute of Mental Health

Substance Abuse and Mental Health Services Administration

Some prevention efforts suggested here for incarcerated populations may not be as effective outside of correctional environments. One systematic review of literature on suicide prevention methods found that research on the effectiveness of screening for suicide risk among the general population was inconclusive.⁴¹ Until more research is conducted on suicide prevention efforts for non-incarcerated, justice-involved people, general suicide prevention efforts and methods (e.g., limiting access to lethal means for suicide, pharmacological treatment, mental health/substance use disorder treatment) may be useful.

Discussion and Conclusion

Given the rise in suicide rates across the United States over the past two decades, it is important to further research and identify potential risk factors for suicide.⁴² Comparing suicide decedents to homicide decedents (as well as comparing suicide decedents with prior criminal histories and those without) based on potentially relevant variables has helped to further identify potential risk factors for suicide.

Several notable differences existed between the suicide and homicide decedents sampled who had at least one arrest prior to death. Suicide decedents had a stronger association with suffering from mental health and/or substance use disorders. A higher proportion of suicide decedents were White, had an older mean age, and were married compared to homicide decedents. Homicide decedents had a higher mean number of prior arrests compared to suicide decedents. These findings were consistent with prior research.

For the most part, suicide decedents with and without prior arrest records did not differ on most mental health and demographic variables. However, one exception was the finding that a higher proportion of suicide decedents with at least one arrest prior to death had a history of suicidal thoughts, plans, and attempts, compared to those suicide decedents with no prior arrests. In addition, a higher proportion of suicide decedents with at least one prior arrest had substance use issues. Although the strength of these associations was statistically weak, the fact that they were still found to be statistically significant suggests that these findings may help to inform suicide prevention efforts for justice-involved individuals.

These findings suggest a need to expand mental health and substance use treatment services for justice-involved individuals for the purpose of reducing suicide risk. Prior research indicates that people involved in the justice system commonly suffer from PTSD and mental health issues that manifest in certain behaviors, such as aggression, substance use and dependency, and suicidal thoughts or attempts.⁴³ Using targeted and evidence-based intervention practices, such as CBT and pharmaceuticals, can help to reduce suicide among at-risk individuals.⁴⁴ Additionally, criminal justice and mental health staff should be annually trained to identify justice-involved individuals at risk for suicide. Psychological autopsy is a reactive measure that also can help inform the understanding of suicide risk factors.⁴⁵

Many suggested suicide risk intervention practices are designed for prison and/or jail settings; as such, further research is required to develop and evaluate potential practices for justice-involved people at risk for suicide in their communities.

If you need support, prevention, or crisis resources for you or your loved ones, or best practices as a professional, contact the 24/7 free and confidential National Suicide Prevention Lifeline at 1-800-273-8255.

This project was supported by Grant # 2017-DJ-BX-0071, Grant #2018-DJ-BX-0761, and Grant #2018-86-CX-K006 awarded to the Illinois Criminal Justice Information Authority by the U.S. Department of Justice Office of Justice Programs' Bureau of Justice Assistance. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author and do not necessarily reflect the views of the Department of Justice or grant-making component, or the Illinois Criminal Justice Information Authority.

Acknowledgement: The author would like to thank Maryann Mason, PhD, Associate Professor, Northwestern University - Buehler Center for Health Policy and Economics, for providing comments and guidance during the editing process of this article.

Suggested Citation: Otto, H. D (2021). *An analysis of risk factors for suicide among justice-involved Illinois violent death victims*. Illinois Criminal Justice Information Authority.

¹ Kochanek, K. D., Xu, J., & Arias, E. (2020). *Mortality in the United States, 2019*. National Center for Health Statistics, Centers for Disease Control and Prevention.

² Hedegaard, H., Curtin, S. C., & Warner, M. (2020). *Increase in suicide mortality in the United States, 1999–2018*. National Center for Health Statistics.

³ National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. (n.d.). *2000–2018, Illinois suicide injury deaths and rates per 100,000: All races, both sexes, all ages*. [Data file].

⁴ Rosen, D. L., Schoenbach, V. J., & Wohl, D. A. (2008). All-cause and cause-specific mortality among men released from state prison, 1980–2005. *American Journal of Public Health, 98*(12), 2278–2284. <https://doi.org/10.2105/AJPH.2007.121855>

⁵ Johnson, J. E., Jones, R., Miller, T., Miller, I., Stanley, B., Brown, G., Arias, S. A., Cerbo, L., Rexroth, J., Fitting, H., Russell, D., Kubiak, S., Stein, M., Matkovic, C., Yen, S., Gaudiano, B., & Weinstock, L. M. (2020). Study Protocol: A randomized controlled trial of suicide risk reduction in the year following jail release (the SPIRIT Trial). *Contemporary Clinical Trials, 94*. <https://doi.org/10.1016/j.cct.2020.106003>; Lize, S. E., Scheyett, A. M., Morgan, C. R., Proescholdbell, S. K., Norwood, T., & Edwards, D. (2015). Violent death rates and risk for released prisoners in North Carolina. *Violence and Victims, 30*(6), 1–18. <https://doi.org/10.1891/0886-6708.VV-D-13-00137>

⁶ Noonan, M. E., Rohloff, H., & Ginder, S. (2015). *Mortality in local jails and state prisons, 2000–2013 - Statistical tables*. Bureau of Justice Statistics.

⁷ Noonan, M. E., Rohloff, H., & Ginder, S. (2015). *Mortality in local jails and state prisons, 2000–2013 - Statistical tables*. Bureau of Justice Statistics.

⁸ Cook, T. B. (2013). Recent criminal offending and suicide attempts: A national sample. *Social Psychiatry and Psychiatric Epidemiology, 48*(5), 767–774. <https://doi.org/10.1007/s00127-012-0567-9>

⁹ Bryson, W. C., Piel, J., & Thielke, S. (2020). Associations between parole, probation, arrest, and self-reported suicide attempts. *Community Mental Health Journal*. <https://doi.org/10.1007/s10597-020-00704-6>

¹⁰ Bryson, W. C., Piel, J., & Thielke, S. (2020). Associations between parole, probation, arrest, and self-reported suicide attempts. *Community Mental Health Journal*. <https://doi.org/10.1007/s10597-020-00704-6>; Lize, S. E., Scheyett, A. M., Morgan, C. R., Proescholdbell, S. K., Norwood, T., & Edwards, D.

-
- (2015). Violent death rates and risk for released prisoners in North Carolina. *Violence and Victims*, 30(6), 1-18. <https://doi.org/10.1891/0886-6708.VV-D-13-00137>; Sirdifield, C., Brooker, C., & Marples, R. (2020). Suicide and probation: A systematic review of the literature. *Forensic Science International: Mind and Law*, 1 <https://doi.org/10.1016/j.fsimpl.2020.100012>; Skinner, G. C., & Farrington, D. P. (2020). A systematic review and meta-analysis of offending versus suicide in community (non-psychiatric and non-prison) samples. *Aggression and Violent Behavior*, 52, 1-7. <https://doi.org/10.1016/j.avb.2020.101421>
- ¹¹ Noonan, M. E., & Ginder, S. (2013). *Mortality in local jails and state prisons, 2000-2011 – statistical tables*. US Department of Justice, Office of Justice programs, Bureau of Justice Statistics.
- ¹² Fazel, S., Cartwright, J., Norman-Nott, A., & Hawton, K. (2008). Suicide in prisoners: A systematic review of risk factors. *The Journal of Clinical Psychiatry*, 69(11), 1721–1731. <http://doi.org/10.4088/JCP.v69n1107>
- ¹³ Bryson, W. C., Piel, J., & Thielke, S. (2020). Associations between parole, probation, arrest, and self-reported suicide attempts. *Community Mental Health Journal* <https://doi.org/10.1007/s10597-020-00704-6>; Cook, T. B. (2013). Recent criminal offending and suicide attempts: a national sample. *Social Psychiatry and Psychiatric Epidemiology*, 48(5), 767-774. <https://doi.org/10.1007/s00127-012-0567-9>; Fazel, S., Cartwright, J., Norman-Nott, A., & Hawton, K. (2008). Suicide in prisoners: A systematic review of risk factors. *The Journal of Clinical Psychiatry*, 69(11), 1721–1731. <http://doi.org/10.4088/JCP.v69n1107>; Lize, S. E., Scheyett, A. M., Morgan, C. R., Proescholdbell, S. K., Norwood, T., & Edwards, D. (2015). Violent death rates and risk for released prisoners in North Carolina. *Violence and Victims*, 30(6), 1-18. <https://doi.org/10.1891/0886-6708.VV-D-13-00137>; Majer, J. M., Beasley, C., & Jason, L. A. (2017). Suicide attempts and personal need for structure among ex-offenders. *International Journal of Offender Therapy and Comparative Criminology*, 61(3), 334-346. <https://doi.org/10.1177/0306624X15595981>
- ¹⁴ Gates, M. L., Turney, A., Ferguson, E., Walker, V., & Staples-Horne, M. (2017). Associations among substance use, mental health disorders, and self-harm in a prison population: examining group risk for suicide attempt. *International Journal of Environmental Research and Public Health*, 14(3), 317. <https://doi.org/10.3390/ijerph14030317>; Ruiz, M. A., Douglas, K. S., Edens, J. F., Nikolova, N. L., & Lilienfeld, S. O. (2012). Co-occurring mental health and substance use problems in offenders: Implications for risk assessment. *Psychological Assessment*, 24(1), 77-87. <https://doi.org/10.1037/a0024623>
- ¹⁵ Bryson, W. C., Piel, J., & Thielke, S. (2020). Associations between parole, probation, arrest, and self-reported suicide attempts. *Community Mental Health Journal*. <https://doi.org/10.1007/s10597-020-00704-6>
- ¹⁶ Mandracchia, J., Sylvara, A., Wikowsky, A., Tieman, K., & Smith, P. (2018). An exploratory analysis of violent offending and the acquired capability for suicide in male prisoners. *International Journal of Offender Therapy and Comparative Criminology*, 62(11), 3436-3446. <https://doi.org/10.1177/0306624X17740558>
- ¹⁷ Binswanger, I. A., Blatchford, P. J., Mueller, S. R., & Stern, M. F. (2017). Mortality after prison release: Opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Annals of Internal Medicine*, 159(9), 592-600. <https://doi.org/10.7326/0003-4819-159-9-201311050-00005>; Lim, S., Seligson, A. L., Parvez, F. M., Luther, C. W., Mavinkurve, M. P., Binswanger, I. A., & Kerker, B. D. (2012). Risks of drug-related death, suicide, and homicide during the immediate post-release period among people released from New York City jails, 2001-2005. *American Journal of Epidemiology*, 175(6), 519–526. <https://doi.org/10.1093/aje/kwr327>
- ¹⁸ DeLong, C., & Reichert, J. (2019). *The victim-offender overlap: Examining the relationship between victimization and offending*. Illinois Criminal Justice Information Authority. <https://doi.org/10.13140/RG.2.2.26400.02561>
- ¹⁹ DeLong, C., & Reichert, J. (2019). *The victim-offender overlap: Examining the relationship between victimization and offending*. Illinois Criminal Justice Information Authority. <https://doi.org/10.13140/RG.2.2.26400.02561>; Tarrier, N., & Gregg, L. (2004). Suicide risk in civilian

PTSD patients. *Social Psychiatry and Psychiatric Epidemiology*, 39, 655-661.

<https://doi.org/10.1007/s00127-004-0799-4>

²⁰ Lize, S. E., Scheyett, A. M., Morgan, C. R., Proescholdbell, S. K., Norwood, T., & Edwards, D. (2015). Violent death rates and risk for released prisoners in North Carolina. *Violence and Victims*, 30(6), 1,019-1,036. <http://doi.org/10.1891/0886-6708.VV-D-13-00137>

²¹ According to the National Violent Death Reporting System codebook, criminal legal problems include recent or impending arrests, being pursued by law enforcement, or an impending criminal court date, among others. Criminal legal problems differ from civil legal problems in that they are considered harmful to society as a whole, prohibited by statute, and prosecuted by law enforcement.

²² Counties included Cook County, including the City of Chicago, DuPage, Effingham, Kane, Kankakee, Kendall, Lake, Madison, McHenry, McLean, Peoria, Sangamon, St. Clair, Tazewell, Will, and Winnebago.

²³ Kane, Kankakee, Kendall, Madison, McLean, Sangamon, St. Clair, Tazewell, Will, and Winnebago, began participating in IVDRS in 2016.

²⁴ Walker, R. L., Lester, D., & Joe, S. (2006). Lay theories of suicide: An examination of culturally relevant suicide beliefs and attributions among African Americans and European Americans. *The Journal of Black Psychology*, 32(3), 320–334. <https://doi.org/10.1177/0095798406290467>

²⁵ Rockett, I. R. H., Wang, S., Stack, S., De Leo, D., Frost, J. L., Ducatman, A. M., Walker, R. L., & Kapusta, N. D. (2010). Race/ethnicity and potential suicide misclassification: Window on a minority suicide paradox? *BMC Psychiatry*, 10(1), 1-8. <https://doi.org/10.1186/1471-244X-10-35>

²⁶ Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., Carli, V., Höschl, C., Barzilay, R., Balazs, J., Purebl, G., Kahn, J. P., Sáiz, P. A., Lipsicas, C. B., Bobes, J., M., Cozman, D., Hegerl, U., & Zohar, J. (2016). Suicide prevention strategies revisited: 10-year systematic review. *The Lancet Psychiatry*, 3(7), 646-659. [https://doi.org/10.1016/S2215-0366\(16\)30030-X](https://doi.org/10.1016/S2215-0366(16)30030-X)

²⁷ Pratt, D., Tarrier, N., Dunn, G., Awenat, Y., Shaw, J., Ulph, F., & Gooding, P. (2015). Cognitive-behavioural suicide prevention for male prisoners: A pilot randomized controlled trial. *Psychological Medicine*, 45(16), 3441-3451. <https://doi.org/10.1017/S0033291715001348>

²⁸ Centers for Disease Control and Prevention. (2020, September 8). *Risk and protective factors*. <https://www.cdc.gov/violenceprevention/suicide/riskprotectivefactors.html>

²⁹ Brådvik L. (2018). Suicide risk and mental disorders. *International Journal of Environmental Research and Public Health*, 15(9), 2028. <https://doi.org/10.3390/ijerph15092028>

³⁰ Mayo Clinic. (2018, October 18). *Suicide and suicidal thoughts*. <https://www.mayoclinic.org/diseases-conditions/suicide/symptoms-causes/syc-20378048>

³¹ Vijayakumar, L., Kumar, M. S., & Vijayakumar, V. (2011). Substance use and suicide. *Current Opinion in Psychiatry*, 24(3), 197-202. <https://doi.org/10.1097/YCO.0b013e3283459242>; Wilcox, H. C.,

Conner, K. R., & Caine, E. D. (2004). Association of alcohol and drug use disorders and completed suicide: An empirical review of cohort studies. *Drug and Alcohol Dependence*, 76, S11-S19. <https://doi.org/10.1016/j.drugalcdep.2004.08.003>

³² Office of the Surgeon General (US), & National Action Alliance for Suicide Prevention (US). (2012). *2012 national strategy for suicide prevention: Goals and objectives for action: A report of the US Surgeon General and of the National Action Alliance for Suicide Prevention*. Washington, DC.; Wilcox, H. C., Conner, K. R., & Caine, E. D. (2004). Association of alcohol and drug use disorders and completed suicide: An empirical review of cohort studies. *Drug and Alcohol Dependence*, 76, S11-S19. <https://doi.org/10.1016/j.drugalcdep.2004.08.003>

³³ Conner, K. R., Wood, J., Pisani, A. R., & Kemp, J. (2012). Evaluation of a suicide prevention training curriculum for substance abuse treatment providers based on Treatment Improvement Protocol Number 50. *Journal of Substance Abuse Treatment*, 44(1), 13-16. <https://doi.org/10.1016/j.jsat.2012.01.008>

³⁴ Swogger, M. T., You, S., Cashman-Brown, S., & Conner, K. R. (2011). Childhood physical abuse, aggression, and suicide attempts among criminal offenders. *Psychiatry Research*, 185(3), 363-367. <https://doi.org/10.1016/j.psychres.2010.07.036>

-
- ³⁵ Shelton, D., Sampl, S., Kesten, K. L., Zhang, W., & Trestman, R. L. (2009). Treatment of impulsive aggression in correctional settings. *Behavioral Sciences & the Law*, 27(5), 787-800. <https://doi.org/10.1002/bsl.889>
- ³⁶ Cramer, R. J., Wechsler, H. J., Miller, S. L., & Yenne, E. (2017). Suicide prevention in correctional settings: Current standards and recommendations for research, prevention, and training. *Journal of Correctional Health Care*, 23(3), 313-328. <https://doi.org/10.1177/1078345817716162>
- ³⁷ Cavanagh, J. T. O., Carson, A. J., Sharpe, M., & Lawrie, S. M. (2003). Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine*, 33, 395-405. <https://doi.org/10.1017/s0033291702006943>
- ³⁸ Suicide Prevention Resource Center. (2020, October). *Evidence-based prevention*. <https://www.sprc.org/keys-success/evidence-based-prevention>
- ³⁹ Noonan, M. E., Rohloff, H., & Ginder, S. (2015). *Mortality in local jails and state prisons, 2000-2013 - Statistical tables*. Bureau of Justice Statistics.; Rosen, D. L., Schoenbach, V. J., & Wohl, D. A. (2008). All-cause and cause-specific mortality among men released from state prison, 1980–2005. *American Journal of Public Health*, 98(12), 2278-2284. <https://doi.org/10.2105/AJPH.2007.121855>
- ⁴⁰ Haney, C. (2003). The psychological impact of incarceration: Implications for post-prison adjustment. In Travis J., & Waul, M. (Eds.), *Prisoners once removed: The impact of incarceration and reentry on children, families, and communities*, 33-66. The Urban Institute Press.
- ⁴¹ Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., Carli, V., Höschl, C., Barzilay, R., Balazs, J., Purebl, G., Kahn, J. P., Sáiz, P. A., Lipsicas, C. B., Bobes, J., M., Cozman, D., Hegerl, U., & Zohar, J. (2016). Suicide prevention strategies revisited: 10-year systematic review. *The Lancet Psychiatry*, 3(7), 646-659. [https://doi.org/10.1016/S2215-0366\(16\)30030-X](https://doi.org/10.1016/S2215-0366(16)30030-X)
- ⁴² Hedegaard, H., Curtin, S. C., & Warner, M. (2020). *Increase in suicide mortality in the United States, 1999–2018*. National Center for Health Statistics.; Noonan, M. E., Rohloff, H., & Ginder, S. (2015). *Mortality in local jails and state prisons, 2000-2013 - Statistical tables*. Bureau of Justice Statistics.
- ⁴³ DeLong, C., & Reichert, J. (2019). *The victim-offender overlap: Examining the relationship between victimization and offending*. Illinois Criminal Justice Information Authority. <https://doi.org/10.13140/RG.2.2.26400.02561>; Fazel, S., Cartwright, J., Norman-Nott, A., & Hawton, K. (2008). Suicide in prisoners: A systematic review of risk factors. *The Journal of Clinical Psychiatry*, 69(11), 1721–1731. <http://doi.org/10.4088/JCP.v69n1107>
- ⁴⁴ Shelton, D., Sampl, S., Kesten, K. L., Zhang, W., & Trestman, R. L. (2009). Treatment of impulsive aggression in correctional settings. *Behavioral Sciences & the Law*, 27(5), 787-800. <https://doi.org/10.1002/bsl.889>
- ⁴⁵ Cramer, R. J., Wechsler, H. J., Miller, S. L., & Yenne, E. (2017). Suicide prevention in correctional settings: Current standards and recommendations for research, prevention, and training. *Journal of Correctional Health Care*, 23(3), 313-328. <https://doi.org/10.1177/1078345817716162>



ILLINOIS CRIMINAL JUSTICE INFORMATION AUTHORITY

300 W. ADAMS STREET, SUITE 200

CHICAGO, ILLINOIS 60606

PHONE: 312.793.8550

TDD: 312.793.4170

WWW.ICJIA.STATE.IL.US

FOLLOW US

