

RESEARCH ARTICLE

Suicide Completion Among Incarcerated Women

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Abstract

Little is known about factors that contribute to suicide completion among women who are incarcerated. The current study used data from the National Violent Death Reporting System to examine contributing factors for 176 suicide deaths from 2003 to 2015 in 21 states among women who were incarcerated. Common circumstances for suicide completion included mental health and substance use challenges. Women experienced these problems at rates higher than men who were incarcerated and completed suicide. In addition, women were more often the victim of violence and abuse. Qualitative narratives were coded, revealing that isolation and health concerns may also contribute to suicide risk for women who are incarcerated.

Keywords: suicide, women, prison, jail

Introduction

In the United States, suicide is the leading cause of death among incarcerated persons, accounting for more than half of all deaths occurring during incarceration (Friestad *et al.*, 2014; Huey & McNulty, 2005). Prior research on suicides occurring in correctional institutions has extensively focused on suicide completion for men who were incarcerated, with less known about factors that contribute to suicide for women who are incarcerated (Dye, 2011). According to the National Institute of Mental Health, in 2016 the rate of suicide for women in the general population was 6.0 per 100,000 individuals. The suicide rate increases to 11 per 100,000 for women in federal prisons and elevates to 28 per 100,000 for women in local jail facilities (Mumola & Noonan, 2009). Research indicates that women come to prison with different life experiences compared to men, and have varying needs before, during, and after incarceration (Clements-Nolle *et al.*, 2009; Dye, 2011; Friestad *et al.*, 2014). The aim of this investigation is to explore the factors associated with suicide completion for women in prison or jail and compare these factors to suicide deaths for incarcerated men.

Literature Review

Among the general population, women pursue more suicide attempts than men (Friestad *et al.*, 2014); however, men have higher rates of suicide completion (Mumola & Noonan, 2009). Factors associated with suicide attempts include minoritized race/ethnicity, lower socioeconomic status, older age, divorce (among men), and unemployment (Chapman *et al.*, 2005). Because of the smaller incidence of suicide completion for women in prison or jail, the majority of research focuses on incarcerated women's self-injurious behavior, suicide attempts, and near-lethal suicide attempts. Factors that contribute to suicide completion or suicide attempts by incarcerated women is largely known from international sources, with little research coming from U.S. samples. These factors can be grouped into three broad categories: demographic factors, life factors, and clinical factors.

Demographic Factors. A study of women who were incarcerated in England and Wales found key sociodemographic factors of women who engaged in near-lethal self-harm to be White, single, and under the age of 30 (Marzano *et al.*, 2011). A study exploring individuals

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who were incarcerated and attempt suicide versus complete suicide found that individuals who completed suicide were older compared to those who attempted suicide (Boren *et al.*, 2018). People who complete suicide were also more educated than people who attempted suicide, and males and individuals who were separated or divorced were more likely to complete versus attempt suicide (Boren *et al.*, 2018). Furthermore, incarcerated women who complete suicide are more likely to have social and economic disadvantage (Liebling, 1994).

Life Factors. Chapman *et al.* (2005) found that family history of completed suicide and mood disorders were positively associated with suicide attempts among women who were incarcerated. Homelessness and childhood abuse were strong predictors of suicide attempts (Boren *et al.*, 2018; Chapman *et al.*, 2005). Women have reported higher rates of adverse childhood experiences and childhood trauma, which may contribute to suicidal behavior among incarcerated women (Clements-Nolle *et al.*, 2009). Incarcerated women who complete suicide are more likely to have a history of physical and/or sexual abuse (Liebling, 1994).

Clinical Factors. More than half of all prison suicides are prefaced by a suicide attempt or self-inflicted injury (Chapman & Dixon-Gordon, 2007). In addition, existing research has indicated women who were incarcerated demonstrate higher rates of clinical risk factors associated with suicide. These risk factors include substance use disorders, mood disorders, and antisocial and borderline personality disorders (Chapman *et al.*, 2005). Additional clinical risk factors such as hopelessness, impulsivity, drug and alcohol dependence, depression, and bipolar depression are all associated with elevated suicide risks among women who are incarcerated (Chapman *et al.*, 2005; Marzano *et al.*, 2011). Incarcerated women who complete suicide often have a history of psychiatric treatment, previous suicide attempts, and alcohol and drug misuse (Liebling, 1994).

Current Study

Few studies examine factors that are associated with suicide completion among women who are incarcerated in prison or jail. Factors that are associated with suicide risk and suicide attempts are also factors that are common among women who are incarcerated (Tripodi & Pettus-Davis, 2013), and when the added vulnerability of incarceration is introduced, the risk of suicide may increase. The current study aims to explore circumstances that are associated with suicide completion among incarcerated women in the United States. Specifically, we will describe the characteristics and circumstances associated with women in prison or jail who complete suicide using univariate descriptive statistics. Second, we will explore whether char-

acteristics and circumstances for women who complete suicide in prison or jail are different from those of men who complete suicide in prison or jail using bivariate statistics. Finally, we will explore coroner/medical examiner and law enforcement narratives to identify characteristics and circumstances that contribute to suicide for women in prison or jail using qualitative thematic analysis.

Method

Data Source

Data came from the National Violent Death Reporting System (NVDRS), which is a state-based surveillance system that collects information about violent deaths, including suicide, homicides, legal intervention deaths, unintentional firearm deaths, and deaths of undetermined intent (Centers for Disease Control and Prevention [CDC], 2018a). As of 2018, all 50 states, the District of Columbia, and Puerto Rico participate in NVDRS (CDC, 2018a). Restricted access data were requested from 2003 to 2015, in which only 27 states participated in data collected. These states are Alaska, Arizona, Colorado, Connecticut, Georgia, Hawaii, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Vermont, Virginia, and Wisconsin. Sources for the data entry include death certificates, coroner/medical examiner records, law enforcement reports, and data abstractor input (CDC, 2018b). Data from these sources about each violent death incident are entered into a single entry by an abstractor (i.e., trained data coders in each state).

Case Selection

Cases were included if the decedent was marked as dying by suicide and as being in prison or jail ($n=2,104$). A total of 1,928 of these deaths were among men (91.6%), whereas 176 were women victims (8.4%).

Measures

Quantitative Measures. All data were extracted from the data sources by the state abstractor. With the exception of age, race, education level, and relationship status, all variables were coded as 1=yes, the variable is endorsed and 0=it is unknown if the variable is present.

Victim characteristics. Information regarding the demographic characteristics of the victim was explored. This included their age, race, education level, and relationship status.

Death characteristics. Information about the death was examined, including the state where the death occurred, whether the victim was using alcohol in the hours

preceding the death, whether the victim tested positive for opiates upon their death, and whether the incarcerated victim was at work or working at the time of death.

Circumstances preceding or related to the incident. We examined a number of variables pertaining to circumstances preceding or related to the incident. Circumstantial variables examined fell into one of the following categories: mental health and substance abuse; interpersonal relationship stressors; crime and criminal activity; life stressors; and suicide-specific circumstances.

Mental health and substance abuse. Abstractors recorded whether the victim had current mental health problems, was currently perceived to have a depressed mood, was currently in treatment for mental health or substance abuse problems, ever had been in treatment for mental health or substance abuse problems, had alcohol dependence or alcohol problems, had a non-alcohol related substance abuse problem, or had an addiction other than alcohol or other substance abuse.

Interpersonal relationship stressors. Abstractors coded whether problems with a current or former intimate partner contributed to the death, problems with a friend were associated with the death, whether the victim was a perpetrator of violence in the past month, experienced violence in the past month, had an argument or conflict, relationship problems with a family member, history of abuse or neglect, or a physical fight immediately preceding the death.

Crime and criminal activity. The abstractor recorded whether the death was precipitated by another crime, whether criminal legal problems contributed to the death, or whether civil legal problems contributed to the death.

Life stressors. Life stressors coded in the data included whether physical problems, job problems, or financial problems contributed to the suicide. Abstractors also coded whether the suicide of a family member or friend or death of a family member or friend contributed to the suicide. They noted whether the victim experienced a crisis with the past 2 weeks, had a recent eviction, or if it was the anniversary of a traumatic event.

Suicide-specific circumstances. Abstractors indicated whether the victim had a history of attempting suicide, a history of suicidal thoughts, whether they disclosed their suicidal intent to another person, or left a suicide note.

Qualitative Narratives. Brief narratives were provided by the coroner/medical examiner (CME) and/or law enforcement (LE) for each suicide death. This typically in-

cluded information about the manner of death, setting in which the death occurred, and described known circumstances that contributed to the death.

Analytic Strategy

Quantitative Data Analysis. Univariate statistics were calculated to achieve the first aim of describing characteristics of and circumstances related to suicide death for women in prison or jail. Univariate statistics included means, standard deviations, ranges, frequencies, and percentages. Bivariate statistics were used to achieve the second aim. Specifically, Fisher's exact test (FET) was used to test bivariate statistics between genders. All bivariate analyses adhered to assumptions (i.e., none of the expected cell counts fell below five), thus making them appropriate for the data (Agresti, 1992). In general, table cells with fewer than five deaths were included in the analyses, but these cells are suppressed in the tables, per NVDRS guidelines, to prevent inadvertent disclosure of potentially identifying information.

Qualitative Data Analysis. CME and LE narratives were reviewed to get a general sense of the data (Chen & Boore, 2008). A codebook was then created using an open-coding approach (Strauss & Corbin, 1998). Data were coded by the first author and the accuracy of the codes was checked by the third author, who coded 15% of the cases. Discrepancies were discussed and resolved until congruence was achieved between coders.

Results

Quantitative Results

Descriptive Statistics

Victim characteristics. Table 1 presents the descriptive information of the women who died by suicide in prison or jail. The average age of women who died by suicide in prison or jail was 34.0 years (median = 33.5, SD = 9.4, minimum = 18, maximum = 55). The majority of women who died in prison or jail by suicide identified as White, non-Hispanic (73.3%). The highest level of education was commonly unknown or missing for these women, but among those for whom it was known ($n = 110$), the highest degree obtained was a high school diploma or GED (51.8%). The modal relationship category was never married ($n = 82$; 46.6%).

Death characteristics. The 176 suicide deaths among women in prison or jail came from 21 states (Alaska, Colorado, Connecticut, Georgia, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia,

Table 1. Descriptive Information of Victim Characteristics

Age	M = 34.92 years (median = 34, SD = 9.4)
Race	n = 176
White, non-Hispanic	129 (73.3%)
Black, non-Hispanic	25 (14.2%)
Hispanic	12 (6.8%)
Other race	10 (5.7%)
Education level	n = 110
Less than high school	32 (49.2%)
High school or GED graduate	57 (34.5%)
Some college credit	16 (9.7%)
Associate degree or higher	5 (7.7%)
Relationship status	n = 175
Never married	82 (46.6%)
Married/civil union/domestic partnership	40 (22.7%)
Divorced	41 (23.3%)
Widowed	5 (2.8%)
Single or married but separated	7 (4.0%)

and Wisconsin). The highest number of suicides among women in prison or jail came from North Carolina (20), Virginia (19), and Maryland (18), although states joined the NVDRS data collection at different years, which could reflect difference in incidents. No deaths were reported from Arizona during this time period. The majority of women were not using alcohol in the hours preceding the suicide (81.3%) and did not die while at work or working (92.6%). A large number of women ($n = 108$) were tested for opiates upon their death and 12.4% ($n = 18$) tested positive. The vast majority (93.2%) of deaths occurred by hanging ($n = 164$).

Table 2. Mental Health and Substance Abuse

Circumstance	Women	Men	p
Victim had been identified as currently having a mental health problem	43.8%	29.6%	<.001
Victim was perceived by self or others to be depressed at time of injury	14.8%	17.5%	>.05
Victim was currently in treatment for a mental health problem or substance abuse problem	29.5%	20.4%	<.01
History of ever being treated for a mental health or substance abuse problem	38.1%	25.3%	<.001
Victim had alcohol dependence or alcohol problem	11.9%	9.6%	>.05
Victim had a nonalcohol related substance abuse problem	38.1%	18.3%	<.001
Victim had an addiction other than alcohol or other substance abuse, e.g., gambling, sexual	CS	CS	>.05

CS = cell suppressed to prevent inadvertent disclosure of identifying information.

Circumstances. Tables 2, 3, 4, 5, and 6 contain the frequency of circumstantial variables for this subsample, broken into mental health and substance abuse (Table 2), interpersonal relationship stressors (Table 3), crime and criminal activity (Table 4), life stressors (Table 5), and suicide-specific circumstances (Table 6). The most common circumstantial factors that appear to have contributed to the suicide include 1) criminal legal problems (60.8%); 2) current mental health problems (43.8%); 3) history of mental health or substance abuse treatment (38.1%); 4) nonalcohol related substance abuse problems (38.1%); 5) current mental health/substance abuse treatment (29.5%); 6) a history of attempting suicide (24.4%); and 7) experiencing or anticipating a recent crisis (23.9%). The remaining circumstances were reported in less than 20% of the cases.

Gender Differences in Circumstances. The majority of circumstantial variables were endorsed equivalently between sexes (see Tables 2, 3, 4, 5, and 6). However, seven circumstances were found more frequently for

Table 3. Interpersonal Relationship Stressors

Circumstance	Women	Men	p
Problems with a current or former intimate partner appear to have contributed to the suicide or undetermined death	11.4%	13.4%	>.05
Problems with a friend or associate (other than an intimate partner or family member) appear to have contributed to the death	5.1%	4.7%	>.05
Victim was a perpetrator of violence within the past month that was distinct and occurred before the violence that killed the victim	4.1%	7.0%	>.05
Victim experienced violence in the past month that was distinct and occurred before the violence that killed the victim	CS	0.6%	<.05
An argument or conflict led to the victim's death	4.1%	2.3%	>.05
Victim had relationship problems with a family member (other than an intimate partner) that appear to have contributed to the death	3.4%	2.9%	>.05
Victim had a history of abuse (physical, mental, or emotional) or neglect (physical or emotional) by a caretaker	2.8%	0.6%	<.05
Immediately before the violent death, there was a physical fight between two individuals that resulted in the death of individuals involved in the fight, bystanders, or individuals trying to stop the argument	CS	0.6%	>.05

CS = cell suppressed to prevent inadvertent disclosure of identifying information.

Table 4. Crime and Criminal Activity

<i>Circumstance</i>	<i>Women</i>	<i>Men</i>	<i>p</i>
Death was precipitated by another serious crime (e.g., drug dealing, robbery)	6.3%	6.1%	>.05
Criminal legal problems appear to have contributed to the death	60.8%	57.2%	>.05
Civil legal (noncriminal) problems appear to have contributed to the death	CS	3.5%	>.05

CS=cell suppressed to prevent inadvertent disclosure of identifying information.

women. Specifically, a greater proportion of women were marked as 1) having a current mental health problem, 2) being currently in treatment for a mental health problem or substance abuse problem, 3) having a history of ever being treated for mental health or substance abuse problem, 4) having a nonalcohol related substance abuse problem, 5) experiencing violence in the past month that was distinct from and occurred before the violence that killed the victim, 6) having a history of attempting suicide before the fatal incident, and 7) having a history of abuse (physical, mental, or emotional) or neglect (physical or emotional).

Qualitative Results

Several notable themes emerged from coding the CME and LE narratives of women who were incarcerated at the time of their suicide. These themes can be collapsed into three main categories: victim characteristics, death characteristics, and circumstances.

Table 5. Life Stressors

<i>Circumstance</i>	<i>Women</i>	<i>Men</i>	<i>p</i>
Victim's physical health problem(s) appear to have contributed to the death	4.0%	5.1%	>.05
Job problem(s) appear to have contributed to the death	CS	1.6%	>.05
Financial problems appear to have contributed to the death	CS	2.0%	>.05
Suicide of a family member or friend appears to have contributed to the death	CS	0.9%	>.05
Death of a family member or friend due to something other than suicide appears to have contributed to the death	2.8%	3.2%	>.05
Victim experienced a crisis within two weeks of the incident, or a crisis was imminent within two weeks	23.9%	19.6%	>.05
A recent eviction or other loss of the victim's housing, or the threat of it, appears to have contributed to the death	0.0%	0.4%	>.05
Incident occurred on or near the anniversary of a traumatic event in the victim's life and was perceived as a contributing factor	0.0%	CS	>.05

CS=cell suppressed to prevent inadvertent disclosure of identifying information.

Table 6. Suicide-Specific Circumstances

<i>Circumstance</i>	<i>Women</i>	<i>Men</i>	<i>p</i>
Victim had a history of attempting to commit suicide	24.4%	17.0%	<.05
Victim disclosed to another person thoughts/plans to commit suicide within the last month	16.5%	15.4%	>.05
Victim left a suicide note (or other recorded communication)	15.3%	21.7%	>.05
Victim had a history of suicidal thoughts, plans, or attempts	8.0%	7.7%	>.05

Victim Characteristics. The narratives provided insight into reasons women were incarcerated. Common reasons included drug and alcohol charges, criminal justice-related charges (e.g., violation of probation, bail skipping, and failure to appear), and other charges (e.g., property crimes and violent crimes). Narratives sometimes described a revolving door of criminal justice involvement, with some individuals being noted as experiencing repeated instances of incarceration with limited time in between incarceration. Several narratives described how women could not bear the burden of being incarcerated again and stated they would kill themselves to prevent further confinement.

Death Characteristics. The narratives provided additional details surrounding the death, including the setting, time since admission and seen alive, intoxication, manner of death, and disclosure.

Setting. Narratives were explored to determine whether the death occurred in prison or in jail. A much greater proportion of narratives mentioned the word jail than prison. Some narratives mentioned the word prison and jail in the same narrative, which suggests that these words might have been used interchangeably, and therefore might not be an accurate source to distinguish between prison or jail settings.

Time since booking and being seen alive. Many of the deaths were coded as having occurred relatively soon after the victim was incarcerated. Victims were either just arrested and in a holding cell or had just been transferred to a local jail facility. Some individuals completed suicide within hours, days, or weeks since being admitted. Many narrative reports described having recently seen the victim alive. Correctional officers noted frequently that it been less than 30 minutes since they had done their last round and reported seeing the victim alive.

Intoxication. For women who completed suicide within hours of being arrested and placed in a holding facility, the majority were arrested for drug or alcohol-related charges and were noted to be extremely intoxicated at the time of arrest and detention. Others were noted to be actively

withdrawing from drugs, often opiates. This is consistent with the finding that 12% of the women screened positive for opiates in the toxicology report.

Manner of death. Narrative data highlighted that the vast majority of suicides occurred by hanging, underscoring the limited resources available to complete suicide in prison or jail. Victims used a variety of tools to complete their hanging, including socks, t-shirts, sheets, bras, shower curtains, and shoelaces. Other manners of death that occurred less frequently included intentional overdose using correctional facility issued medication.

Disclosure. Narratives indicated that the suicidal women disclosed intent to incarcerated peer(s), friends or family members via telephone, or a correctional staff member. Disclosures of intent to staff members frequently led to the incarcerated woman being placed on suicide watch or heightened surveillance. Other times women made hints of suicide to staff, which were followed-up on unsuccessfully.

Circumstances. Isolation and health issues emerged as circumstances that may have contributed to women completing suicide.

Isolation. A number of narratives described the victim as being socially isolated, which could be a factor that contributes to suicide. Narratives describe women being in prison or jail cells alone without cellmates, and some of the victims were moved to more isolated conditions relatively soon before their death. In describing these conditions, the narratives included statements suggesting the victim was lonely and wished or requested to have a cellmate.

Beyond narratives that describe social isolation, a number of narratives also described physical isolation through the use of specialized units or segregation practices. This included references to being in segregation, isolation, lockdown punishment, temporary lockup, solitary confinement, and time-out. Other women were noted as residing in specialized units for women with mental health needs.

Health. A number of narratives indicated that the victim had significant health concerns. Issues that were mentioned included heart murmurs, asthma, migraines, seizure disorders such as epilepsy, hypertension, hypoglycemia, Parkinson's disease, toothaches, MRSA in the lungs, hepatitis C, eczema, stomach problems, and ulcers. Ten narratives described mental health conditions that could be classified as psychosis symptoms. Women were described as hearing voices, hallucinating, and being delusional. Psychotic-related diagnoses included psychotic disorder, histrionic personality disorder, and schizophrenia. Over half of the narratives revealed that these women were on medication. Some were on medication prior to incarceration but may not

have been prescribed it after being incarcerated. Other narratives clearly mentioned that the was victim on medication but was refusing to take it. However, the vast majority of women were on medication and taking it as prescribed. Some women used these medications to intentionally overdose.

Discussion

This investigation revealed that many factors contribute to suicide completion for women who are incarcerated in prison or jail. The majority of extant research focuses on factors that are associated with suicide completion for men, as the rate of suicide completion for men is greater (Mumola & Noonan, 2009). However, this research revealed that suicide completion among women who are incarcerated has different characteristics and circumstances than suicide completion among men who are incarcerated. Previous research has found that being of White race, single marital status, under age 30, and more educated were demographic characteristics associated with suicide completion for women who were incarcerated. In addition, substance use disorders and mental health concerns appear to contribute. The current research showed women were of an older age and had lower education than previous studies using sampling techniques. Interestingly, the racial profile of women who complete suicide in prison or jail does not match the racial profile of women who are incarcerated in the United States (The Sentencing Project, 2019), which underscores the need to attend to issues of intersectionality in prevention programming (Crenshaw, 1989).

Other circumstantial factors not previously identified include the influence of criminal legal problems, having a history of attempting suicide, and experiencing or anticipating a recent crisis. While these circumstances, to our knowledge, have not been identified as precursors to suicide completion for incarcerated women, crises and suicide attempts are well-known precursors to suicide completion for women in the community (Mościcki, 1997). Additional circumstances were identified from qualitative narratives that have not been documented previously. This included isolation as well as health-related issues such as pain and medication compliance. In addition, women who were incarcerated and completed suicide had higher rates of mental health and substance abuse problems, and a higher proportion of women were exposed to violence during their lifetime compared to men who were incarcerated and completed suicide.

Interpretation and Implications

Many women had a history of mental health and substance abuse treatment but were not currently in treatment. It is unclear if they were not in treatment because they did not want to be, were not referred, or did not have access to these services. Prisons and jails have limited capacity to meet the health needs of incarcerated persons, there are

long wait times to see health professionals, and these interventions are not always therapeutic. In addition, many women were incarcerated for crimes related to drugs or alcohol, which reflects sexist ways the War on Drugs has been enacted in the United States (Moore & Elkavich, 2008). For example, women have been disproportionately incarcerated for accessory to drug crimes primarily committed by their male intimate partners, often receiving longer sentences (Moore & Elkavich, 2008). Some of these women were intoxicated when they were arrested and completed suicide within hours of being confined. Women who are struggling with substance use and abuse issues need community treatment options instead of being incarcerated. The hours after arrest emerged as a particularly risky time period for suicide completion, especially for women who were arrested and detained while being intoxicated. This underscores the need for detoxification and withdrawal protocols in booking, jail, and detention centers.

Many of these women were returning for criminal justice-related charges, such as violation of probation or failure to appear. Several women noted this “revolving door” as being the impetus to completing suicide, a theme that emerged from the qualitative narratives. These women became entangled with the criminal justice system, could not find a way out, and could not bear the burden of being in prison or jail. This harkens prior calls for gender-responsive and trauma-informed practices within confinement (Kubiak *et al.*, 2015; Messina *et al.*, 2010; Saxena *et al.*, 2014; Wolff *et al.*, 2012; Zlotnick *et al.*, 2009). This is particularly true as more women who completed suicide had histories of violence and abuse than men, underscoring the impact of the abuse-to-prison pipeline (Saar *et al.*, 2015).

Relatedly, many of the narratives revealed stories of women who were isolated while incarcerated. Women who described being isolated had been placed in segregation, were inadvertently separated from their previous cellmate, or lived in a single unit cell. They were noted as remarking how they were isolated and needed a sense of connection. This could be why when some women return to prison or jail, they complete suicide—because the reality of social and physical isolation is too much to bear. This may also be a gendered experience, as women are more social and thrive on having meaningful connections with other humans, especially in prison (Tittle, 1969). The techniques that are traditionally used to control and manage conflict or crowds in men’s prisons and jails may not work for women who are incarcerated and may ultimately be contributing to their suicide. Specifically, single cells and segregation practices, which are controversial even for men, may be particularly harmful for women who are socialized to be more relational. Women were noted as completing suicide recently after being observed or checked-on by a correctional officer, so this method of deterrence may not be the most effective solution for

women, who may benefit from peer accountability and social interaction. Some women even disclosed their intent to complete suicide to other incarcerated women, underscoring the social component of the act.

Many women who completed suicide suffered from medical conditions. Prisons and jails are not designed to deliver primary care, prioritizing critical medical issues (Daniel, 2006). It is possible that this lack of treatment of minor and chronic medical conditions contributes to suicide among women who were incarcerated. This is especially pertinent as we consider emerging research on the influence of chronic pain on suicide completion (Petrosky *et al.*, 2018). While chronic pain was not noted directly, many of the medical conditions that were mentioned (e.g., toothaches, stomach problems, ulcers), when left untreated, can lead to chronic pain. Additionally, many of the women who completed suicide received medication from the prison or jail, which could be a point of suicide prevention and intervention. Women who are incarcerated might disclose intent to complete suicide to jail medical staff, jail staff might notice when an incarcerated person is not taking their medication, and the regular interaction between staff and incarcerated person could be used to promote trust and disclosure if a person is considering suicide.

Limitations

Several important limitations exist in this research. First, comparisons between states could not be conducted due to states joining NVDRS at different years. Due to data collection procedures utilized by NVDRS, an affirmative code for each variable indicates with certainty that the variable was endorsed. A code of 0 does not mean the variable was not present, only that it is unknown whether the variable was present, meaning that conclusions can be drawn only about positive endorsements. Furthermore, because NVDRS collects data about all violent deaths that occur in a state, not just those in prison or jail, there are missing variables (e.g., whether the decedent was being housed in solitary confinement). While some of this information was gleaned by interrogating the qualitative narratives, we have less certainty that this information reflects all of the individuals who were housed in solitary. Thus, we cautiously offer this as a theme that emerged without providing the number of instances we observed. We recommend future research focus on this condition and its influence on suicide completion for women. Additionally, because CME and LE appear to use the words prison and jail interchangeably, we are unable to draw conclusions about these likely different experiences. Finally, in reviewing the narratives for women, we found 17 misclassified cases (suicides that were marked as being in prison or jail, but upon review of the narrative were not completed while in correctional confinement). While we eliminated these cases from analyses, we cannot be certain that all of the

suicides were accurately classified as occurring in prison or jail, as it was beyond the scope of this study to review the men's narratives. As this research question was exploratory in nature, future research should devise hypothesis-driven research questions that could be answered using more advanced statistical techniques.

Conclusion

Suicide completion is the leading cause of death for individuals who are incarcerated, and research among incarcerated women is lacking. This project used state-level data to explore factors that contribute to suicide completion for incarcerated women from 21 states from 2003 to 2015. Many factors that were associated with suicide completion for incarcerated women mirror those of incarcerated men and women in the general population. However, several findings emerged that have important implications for correctional settings: intoxication upon arrest, the influence of the revolving door of the criminal justice system, isolation, and medical conditions. Correctional health care settings can utilize this information to modify prevention, screening, and response procedures to reduce the incidence of completed suicide among women who are incarcerated.

Authors' Note

The National Violent Death Reporting System (NVDRS) is administered by the Centers for Disease Control and Prevention (CDC) by participating NVDRS states. The findings and conclusions of this study are those of the authors alone and do not necessarily represent the official position of the CDC or of participating NVDRS states.

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