

Xiao-Yan He,¹ M.D.; Alan R. Felthous,² M.D.; Charles E. Holzer, III,¹ Ph.D.; Pradan Nathan,³ M.D.; Spark Veasey,⁴ M.D.

Factors in Prison Suicide: One Year Study in Texas*

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ABSTRACT: The goal of the study was to examine psychopathology and stressors suffered by suicide victims, and to describe the characteristics of the suicides in the Texas Department of Criminal Justice between June of 1996 to June of 1997. Data on 25 completed suicides were collected from the records department. Results: The authors identified 60% of the suicide victims with a history of psychiatric disorders. Seventy-six percent had been diagnosed with psychiatric disorders while incarcerated. The most frequent psychiatric disorders were mood disorders (64%), psychotic disorders (44%), personality disorders (56%), and comorbidity with a history of presentencing alcohol and drug abuse was common. Most of the victims experienced chronic and/or acute stressors of acute trauma, disrupted relationship, sentence hearing, and/or medical condition. We concluded that important factors associated with increased risk of prison suicide include psychiatric disorders, comorbid substance abuse, a history of suicide attempt, and chronic and/or acute stressors.

KEYWORDS: forensic science, correctional psychiatry, psychopathology, prison suicide, suicide prevention, stressors

The rate of suicide in jail facilities is substantially higher than that in the general population. Although the number of studies on suicide in county jails has increased in recent decades, the issue of prison suicide has not received comparable attention. Among the previous studies of suicide in state prisons, much of the focus was on suicide rates and victim profiles relying on demographic data, with little or no consideration of precipitating factors, mental illness of suicide victims, and the differences between the prison and jail suicides. This dearth of information on prison suicides undoubtedly limits our appreciation of risk factors for prison suicide. This study, therefore, is intended to examine variables associated

with prison suicide and to establish a better understanding of the phenomenon of suicide in prison populations, which we expect will, in turn, assist in the development of improved preventive measures for incarcerated populations.

Methods

We reviewed all 25 cases of inmate suicide, committed within 20 of the 107 Institutional Division prison units of the Texas Department of Criminal Justice Prison System (TDCJ), during the period from June 1996 through June 1997 (13 months). The cases consisted of 24 males and 1 female, aged 21 to 56 years. There were ten Caucasian Americans, eight African Americans, and seven Hispanic Americans. The sample was comprised entirely of prisoners serving different lengths of sentences (ranging from five years to life imprisonment) for a wide variety of crimes against person and/or property as well as drug related crimes.

Data on the suicide victims were obtained from the record department of the Texas Department of Criminal Justice. The victims' medical charts, confinement records, psychiatric evaluation, treatment records, and autopsy reports were reviewed. Data were gathered on the following sets of variables: 1) demographics, 2) mental disorders, 3) characteristics of suicide victims, 4) circumstances of suicide, and 5) autopsy reports.

Results

Demographic Characteristics of Suicides

Age—Ages in this study ranged from 23 to 56 years, with an average age of 33, which is similar to the average age of 34 of the TDCJ prison population.

Gender—Males constituted 96% ($N = 24$) of the suicides compared to only 4% ($N = 1$) females. This was not surprising, since the vast majority of inmates (94%) in the Texas Prison System were males.

Ethnicity—The White inmates consist of 28.6%, Black inmates consist of 46.0%, and Hispanic inmates consist of 26.0% of the total inmate population in the Texas Prison System. Inmates from other ethnic background consist of 0.4% of the inmate population. The inmates who committed suicide were 40% ($N = 10$) White, 32% ($N = 8$) Black, and 28% ($N = 7$) Hispanic. The suicide victims' ethnic background is slightly over-represented by White inmates and under-represented by Black inmates.

¹ University of Texas Medical Branch, Department of Psychiatry.

² Southern Illinois University School of Medicine, Department of Psychiatry, Chester Mental Health Center.

³ Texas Department of Criminal Justice Health Services, Department of Preventive Medicine and Community Health, University of Texas Medical Branch.

⁴ University of Texas Medical Branch, Department of Pathology.

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The results of this study have been presented at the annual meeting of American Academy of Psychiatry and the Law in poster form in October of 1999, and at the 52nd annual meeting of the American Academy of Forensic Sciences in podium presentation in February of 2000.

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Mental Disorders among the Suicides

Rates of Mental Illness—Results of this research suggest a high rate of mental disorders among prisoners who committed suicide. Of all 25 cases reviewed, mental disorders excluding personality and substance abuse disorders had been identified at intake screen for 60% ($N = 15$). Psychiatric diagnoses were identified at some time during incarceration for 76% ($N = 19$). Onset of mental disorders occurred before 18 years of age for 67% ($N = 10$). Eleven of these suicide victims had at least one or more prior admissions to a psychiatric hospital.

A wide spectrum of diagnoses emerged across the sample, with high rates of several psychiatric disorders during incarceration. Figure 1 shows all of the psychiatric disorders recorded prior to and during incarceration. The disorders were categorized into five groups: 1) psychoses including: schizophrenia, schizoaffective disorder, and psychosis, not otherwise specified; 2) mood disorders including: major depression, bipolar disorder, adjustment disorder with depressed mood, and dysthymic disorder; 3) anxiety disorders including: acute stress disorder and anxiety disorder with panic attacks; 4) impulse control disorders including: intermittent explosive disorder; 5) personality disorders including: antisocial and borderline personality disorders. We found that mood disorders were the most frequent among all psychiatric diagnoses recorded prior to incarceration (44%), and remained the highest (64%) during incarceration. Psychoses were noted prior to incarceration in 28% of the suicides, and 44% were diagnosed as psychotic at some time during their last incarceration. Personality disorders were recorded in only 4% of the suicides at admission, but the diagnosis was identified in 56% of the suicides during the current incarceration, with all personality disorders being borderline and/or antisocial. Diagnoses documented in current prison records were higher than at admission. The diagnoses increased 14 times for antisocial and/or borderline personality together, increased 1.5 times for mood disorders, 5 times for impulse control disorders, and increased 1.4 times for psychoses.

Family History of Mental Disorders, Substance Abuse, and Incarceration—Thirty-six percent of inmates who committed suicide had family histories of mental illness, substance abuse, or incarceration. Twenty percent had family members with mental illness, 12% had family members with alcohol or drug abuse, and 8% had family members who had been incarcerated. Additionally, 8% had family members who had committed suicide, 16% had been subject

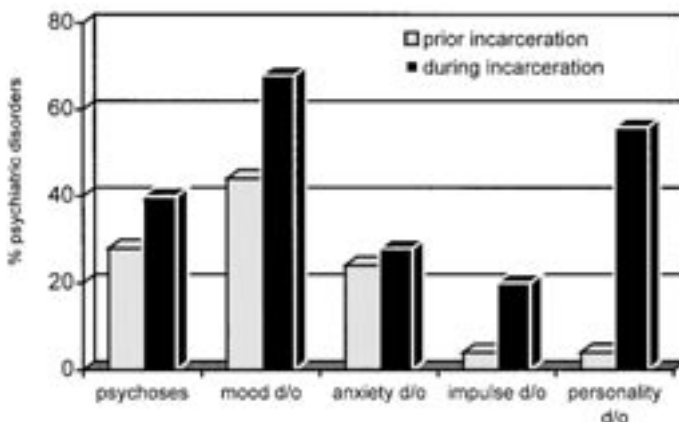


FIG. 1—Psychiatric disorders among suicide victims.

TABLE 1—History of suicide attempt.

	Prior to Incarceration	During Incarceration
Suicide attempt		
No attempt	12/25* (48%)	9/25 (36%)
With attempt	13/25 (52%)	16/25 (64%)
With multiple attempt (>3)	10/13 (77%)	9/16 (56%)
Suicide ideation		
Voiced suicidal ideation	N/A	18/25 (72%)
Denied suicidal ideation	N/A	5/25 (20%)
No data on suicidal ideation	N/A	2/25 (8%)

* Number of suicide victims.

to physical or sexual abuse, and 8% had been raised in foster homes.

History of Suicide Attempt—History of a prior suicide attempt was found to be associated with the completion of suicide. Table 1 lists prior suicide attempts and suicide expressions made by the inmates. Over half of the inmates reported at least one attempt prior to incarceration, and over two thirds of these who had attempted suicide prior to incarceration had made multiple attempts. The percentage of suicide attempts in prison was also quite high. Sixty-four percent of those who committed suicide had made at least one prior suicide attempt in prison, and 56% of those who had attempted suicide made more than three attempts to kill themselves in prison. Sixty-three percent of those who had previously attempted suicide in prison used lethal methods including hanging, burning, swallowing a razor blade, strangulation, and neck cutting during their unsuccessful attempts, all of which resulted in psychiatric hospitalization. Thirty-seven percent of those who had attempted suicide used less serious methods including cutting their wrists, overdosing on small amounts of medications, and refusing food and water. It is possible that these inmates chose less serious methods to inflict pain, cause self-injury, or gain entry into a hospital without intention of death.

History of Substance Abuse—Our study found that 68% of the inmates who committed suicide had a history of alcohol abuse or dependence, and 68% had illicit drug abuse or dependence. Among the drugs abused by the inmates were: 48% marijuana, 32% cocaine, 28% heroin, 24% barbiturates, 24% methadone, 24% LSD, 24% inhalants, 20% amphetamine, and 12% benzodiazepines. Forty-eight percent of the suicides had a history of both alcohol and drug abuse or dependence, and 34% had multiple drug abuse or dependence. There was no information available in the records on alcohol or drug abuse during incarceration, which is prohibited in the prison. As noted in the autopsy reports below, one suicide victim was tested positive for a drug at the time of actual suicide.

Characteristics of Suicide Victims

Comorbidity of Psychiatric Illness and Substances Abuse—Of the suicide victims, 68% had two or more psychiatric diagnoses prior to incarceration; the rate increased to 88% during incarceration. Examination of comorbidity of mental disorders and substance abuse in this sample population revealed that 68% of the suicide victims who suffered from psychiatric disorders also had presentencing substance abuse. Seventy-five percent of the suicidal victims with mood disorders and 91% with psychotic disorders had

abused alcohol and/or drugs. Other psychiatric disorders had lower correlated substance abuse.

Stressors—Various subjective comments suggesting stressful circumstances made by the suicide victims were noted in their records. These comments gave some clue as to what stressors these victims might have experienced before they committed suicide. We grouped these comments into four types of stressors in Table 2.

Conflicts with the institutional environment—Undesired unit placement, work assignment, and disciplinary confinement were the most commonly mentioned institutional stressors. Some offenders could not bond with other inmates in their units; they experienced complete psychological isolation; some found their work assignment unfavorable and had absolutely no influence on decisions imposed on them; some had frequent fights with other inmates and received disciplinary confinement.

Interpersonal conflicts—The most common stressors mentioned by suicide victims were disrupted relationships with their families and relatives. After an offender's twin brother passed away, the thought of his own death seemed to be bearable. An offender expressed extreme sadness over the separation from his one-year-old son. Another offender received a letter from a murder victim's mother. Tremendous guilt and shame were expressed in a counseling session about the crime for which the offender was convicted. Several offenders who committed suicide alleged physical and sexual assault by other inmates. Some had frequent arguments with staff and fights with other inmates.

Legal processes—Alleged sexual assault of a female guard was found in one offender's record. The offender received an additional charge and disciplinary confinement. A suicide victim was found to be very anxious in his cell prior to a court hearing for alleged physical assault to a guard. An offender committed suicide three days after his entry to the prison for a long sentence.

Medical conditions—Several offenders who committed suicide had long-standing frequent seizure episodes; one offender had severe insomnia for several days; two offenders might have had delirium from unknown conditions recorded prior to their suicides. Other findings of medical conditions included end-stage diabetes, AIDS with central nervous system involvement, hypertension, and heart disease.

Stressors that the victims experienced within six months of their suicide were defined as acute stressors; stressors that lasted more than six months, chronic stressors. Forty-eight percent of the victims experienced acute stressors. Seventy-six percent suffered from chronic stressors. Of the acute stressors, institutional conflict seemed to be the most common, while interpersonal conflict and medical condition appeared to be high among the chronic stressors.

Criminality versus Psychiatric Disorders and Substance Abuse—Study results of our study in Fig. 2 show that all of the suicide victims who had been sentenced for violent offense against a person had mood disorders, as did 75% of those convicted of a property offense. Of suicidal victims sentenced for property offenses, 67% had a psychosis. Of those with offenses against a person, 28% had a psychosis.

Offense and Sentence—Forty-four percent of the suicide victims were charged with violent offenses against a person; 36% with property offenses; 12% with drug offenses; and 8% with public-order offenses (Table 3). The victims in this study were more frequently charged with violent offenses against a person. Suicide victims were sentenced to an average of 153 months for all offenses.

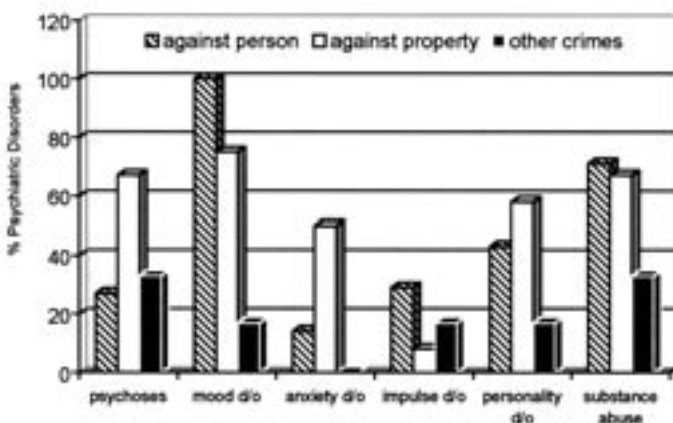


FIG. 2—Criminology in suicide victims.

TABLE 2—Stressors associated with suicide.

	Institutional (no.)	Interpersonal (no.)	Legal (no.)	Medical (no.)
Acute stressor (within 6 mon)	Undesired placement (7) Discipline confinement (2)	Disrupted relation (2) Fight with inmates (1) *Physically beaten by other inmates (2) Sexually assaulted by other inmates (3)	Pre-hearing (1) Charge with assault guard (1) Recently received a long sentence (1)	Delirium (2) Insomnia (1) Seizure (2)
Sub. total	9	8	3	5
Chronic stressor (>6 mon)	Undesired placement (5)	Disrupted relations (6) Fight with inmates (4) *Physically beaten by other inmates (1) *Sexually assaulted by other inmates (1)	N/A	Medical conditions (8)
Sub. total	5	12	...	8

* Physical and sexual assaults were noted from inmates' comments in their clinical records, not adjudicated.

TABLE 3—*Offenses.*

Offense	TDCJ Suicides
Violent Offenses	44.0%
Murder	16.0
Sexual assault	8.0
Robbery	16.0
Aggravated assault	4.0
Property offenses	36.0%
Burglary	28.0
Larceny/theft	8.0
Fraud	0.0
Drug offenses	12.0%
Possession	8.0
Trafficking	4.0
Public-order offenses	8.0%

From the time of admission to prison until the time of their death, the victims served an average 25 months, only 18.4% of their total sentenced time. Twenty percent of the victims completed suicide within three months of their confinement to the prisons.

Circumstances Related to the Suicides

Method of Suicide—Nineteen of all the suicides were committed by hanging. Of the remaining six suicides, three victims overdosed on tricyclic antidepressants, one jumped from a third floor that was 30 ft above the ground inside of the prison unit, one slashed his left arm and bled to unconsciousness, and one died of strangulation.

Material Used—A variety of materials were used for committing suicide. Bed linen was the most commonly used material for hanging. Other materials included socks, an elastic strip from underpants, a shoelace, and a bandage from wound dressing. The hanging ligatures were found to be attached to an air vent duct ($N = 10$), a handrail on the wall ($N = 1$), a bed rail ($N = 4$), a cell bar ($N = 2$), and a lock box ($N = 1$), and unknown attachment ($N = 1$). Tricyclic antidepressants were the next most common material used for suicide. One victim obtained the medication from unknown sources; two others obtained the antidepressant by prescriptions from psychiatrists. Other materials were also used for suicide, but much less often.

Time and Location of Suicide—There was no obvious pattern to the time of day when the suicide occurred. Suicides occurred throughout a 24 h period, with 64% of victims dying between 7 pm and 7 am and 36% between 7 am and 7 pm. Seventy-six percent of suicides were committed in single-person cells, while much fewer occurred in shared cells (20%), and on an elevated floor outside the prison cells (4%).

Interventions—Twenty-two of the suicide inmates reported a history of mental illness at intake screen, all of them received follow-up psychiatric evaluation and treatment during incarceration. Fifty-six percent had psychiatric hospital admissions for suicide attempt or threat, or acute psychotic episode. Fifty-two percent had regular psychotropic medication follow-up visits; 32% received individual counseling; and 12% participated group therapy. Mental health professionals in the prison system provided psychiatric medication management, group therapy for anger control, and substance abuse. All the suicide victims who attempted suicide before their death ($N = 16$) had received crisis intervention including sui-

cidal precautions, protective custody, or hospitalization at the time they expressed their thoughts or threats of suicide, or attempted suicide. Sixteen of the inmates had at least one admission to the prison psychiatric hospital, seven of them had three or more admissions during incarceration. Of those with at least one admission, 93% had been admitted within six months of the successful attempt.

Autopsy Report

Mechanism of Death—All of the inmates who hanged themselves and the one who strangled himself died of anoxia due to vascular and airway compression. Of the three inmates who overdosed on tricyclics, two died of heart failure, and one died of sepsis secondary to peritonitis due to colon perforation. One inmate died of exsanguination secondary to a severed medial cubital vein. One inmate died of cerebral hemorrhage secondary to brain injury from jumping from a 30-ft height from third floor.

Evidence of Previous Suicide Attempt—Thirteen inmates had a history of a prior suicide attempt based on self-report at intake screen. The postmortem autopsy found that a total of 18 inmates made a previous suicide attempt as evidenced by healed scars from skin lacerations and gunshot wounds.

Postmortem Toxicology—Seventeen inmates had toxicology tests of urine, blood, and body vitreous humor. Thirteen of them had negative findings of alcohol and other drugs, three had toxic level of tricyclics, and one was positive for propoxyphen that had been obtained by the inmate from an unknown source.

Discussion

Some of the findings in this study were consistent with literature. For example, the majority of suicide inmates were male (96%), had attempted suicide during the current incarceration (64%), committed suicide by means of hanging (76%), chose bed linen as the suicide instrument (60%), and committed suicide in a single cell (72%). In contrast to jail suicides, however, 24% used other lethal means including overdosing on tricyclic antidepressant, jumping, cutting, and strangulation. The time of the suicide was widely distributed and not clustered around entry to the prison.

The characteristics of this study that differ from other studies are the following:

Psychiatric Disorders Among the Suicides—A strong correlate indicator for suicide in the general population is the presence of mental illness (1). Rich and Runeson (2) found that more than 90% of all persons who commit suicide have a diagnosable psychiatric illness, with depression and alcohol use the most common diagnoses. Other persons at risk for suicide include those diagnosed with schizophrenia, borderline or antisocial personality disorders, manic-depressive disease, dysthymia, and anxiety disorder (3–5). The limited research available on prison suicide indicates a history of psychiatric illness can be a factor associated with an increased risk for suicide (6–8).

Suicide inmates in this study were reviewed with special focus on their history of psychiatric illness and current psychiatric diagnoses. We found that 60% ($N = 15$ of 25) of the victims had a history of psychiatric illness prior to incarceration, which was similar to the percentage of prison suicide victims with mental illness reported by Anno of 68% (7) and higher than that reported by White of 49% (8). The percentage of the victims who suffered psychiatric illness while incarcerated increased substantially to 76%. One reason for the high

rates of psychiatric illness among TDCJ suicide victims is that the screening, diagnostic, and subsequent evaluation procedures are rather thorough. All inmates are carefully evaluated, mentally ill inmates who otherwise would be missed are selected and receive appropriate treatment. Another reason for such high rates of psychiatric illness among the suicide victims is that TDCJ had provided mental health training for all security, medical, and mental health staff to recognize mental illness. This training enabled staff to make prompt referral to mental health professionals for appropriate diagnostic evaluation and treatment of the mentally ill inmates.

Studies on jail suicides usually provide little information about previous psychiatric hospitalizations or treatment of suicide victims. The New York State Commission of Corrections (9) found that 55% of all inmates who committed suicide during 1979 had been psychiatrically hospitalized on at least one prior occasion. Farmer et al. (10) found that 53.8% of inmates in a county jail who had self-inflicted medically serious injury had previous in-patient psychiatric diagnoses and treatment while incarcerated. However, such studies provide no information on psychiatric diagnoses and treatment. The few studies available on prison suicide usually provided percentages of mentally ill suicide victims (7,8,11) but no detailed report on pre-trial psychopathology, or psychiatric illness suffered by suicide victims while incarcerated.

To our knowledge, this is the first study to report the rates of psychiatric disorders in prison suicide victims. We report a wide variety of postsentenced psychiatric disorders. The most frequently recorded psychiatric disorders among the Texas prison suicide victims are psychotic disorders (44%), mood disorders (64%), and personality disorders (56%). In comparison with presentencing population histories, the postsentenced psychiatric disorders were 14 times higher for antisocial and/or borderline personality together, 1.5 times for mood disorders, 5 times for impulse control disorders, and 1.4 times for psychoses. The results of this study provide data on both pretrial psychopathology and postsentenced psychiatric disorders before the victims committed suicide. The increases in the rates of postsentenced psychiatric disorders may be associated with possible exacerbation of the psychiatric illness in the prison, as well as the preventive measures employed by TDCJ system, and especially the comprehensive, concurrent diagnostic evaluations provided all newly admitted prisoners.

The substantial increase in the rate of personality disorders in post-sentenced suicides may be associated with a number of factors. The prison intake screen may focus more on axis I than on axis II psychiatric disorders in the Diagnostic and Statistical Manual of Mental Disorders fourth edition (DSM-IV). The suicide inmates with personality disorders may have remembered major diagnosis for which they receive treatment or hospitalization; personality disorders may not have been the focus of their earlier treatment or their memory of treatment. Therefore, inmates' reports at the prison intake screen may not include their previously diagnosed personality disorders. If diagnosed, the suicide inmates' personality disorders may be exacerbated in the crowded, strictly structured prison environment. Personality disorders certainly present a challenge to the prison mental health staff. Development of effective treatment strategies will help in the management of inmates with personality disorders.

Since accurate data on the percentage of the psychiatric disorders among inmates in the general population of the Texas Prison System is not available, it is difficult to compare psychiatric disorders, or draw conclusions based on this report alone. Further research is needed to study the prevalence of psychiatric disorders in all inmates.

Substance Abuse and Comorbidity of Psychiatric Disorders—In his nationwide jail suicide study, Hayes (12) found that inmates who were charged with alcohol or drug related crimes are more suicide-prone, and committed suicide during the first hours and days after arrest, suggesting withdrawal from alcohol or drugs may have been an important factor in their suicidal acts. Physical withdrawal may not be a factor in triggering suicide among inmates in state prison, but abstinence from alcohol and drugs might have deprived the suicidal inmates of their primary means of coping with stressful situations in prison. The high rates of alcohol abuse (68%) and drug abuse (68%) among the Texas prison suicide victims indicate that inmates who have been substance abusers are at significant risk of suicide while imprisoned, even though they are not presently under alcohol or drug influence. Except the three victims who died from overdose on tricyclic antidepressant and the one who had positive propoxyphen in urine, all the Texas prison suicide victims had a negative postmortem toxicology test. It is unknown whether or not this one particular victim took suicidal action while under the influence of propoxyphen.

People who abuse alcohol and drugs are prone to develop substance induced psychotic disorders, mood disorders, or anxiety disorders (13). People who suffer from major psychiatric disorders such as psychotic disorders, mood disorders, and anxiety disorders often use alcohol or drugs as a means of calming themselves or easing their anxiety. As expected, the comorbidity of presentencing substance abuse and psychiatric disorders are common (68%) among the Texas prison suicide victims. While it has been recognized that alcohol and/or drug intoxication is a contributing factor in the etiology of suicide attempt in jail studies, it has not been recognized in prison suicide studies; comorbidity has been much less recognized as an important factor in prison suicide.

Stressors—In jail suicide studies, Hayes (14) reported certain features that promote suicide behavior: fear, distrust, lack of control, isolation, and shame. Although prison suicide victims share some of these stressful conditions, the stressors that could be precipitating factors in prison suicide are not identical. Among the acute stressors experienced by the Texas prison suicide victims, an acute trauma, disrupted relationship, sentence hearing, and/or acute medical condition appeared to be the most commonly recorded and might have played important roles in the victims' decision to commit suicide. The chronic stressors experienced by the suicide victims are undesired placement and assignment, loss of contact with family, a fight with other inmates, and chronic medical conditions. The suicide victims with psychiatric disorders in particular may have weakened mental strength and coping ability to handle the common stresses in the prison. When stressors increase or a crisis emerges, they have far fewer inner resources to create solutions to the crisis; they may become hopeless and choose to take their lives.

These stressors are not inconsistent with several models of suicide (15). The stressors should be viewed as life events that offenders may not be able to handle. Therefore, recognizing these stressors and providing support and intervention should be an important part of education and training for not only mental health professionals, but for other prison staff members as well. However, even all the appropriate procedures for suicide prevention provide no guarantee that inmates will not attempt suicide.

Criminality and Sentence—Most jail studies indicated that suicide victims had been charged with "nonviolent" crime (16). However, a recent jail study by DuRand (17) indicated that inmates charged with murder or manslaughter were 19 times more likely to

commit suicide than were inmates with other charges, and 39% of suicides were committed by individuals charged with murder. He concluded that the charge of murder or manslaughter is an important risk factor in jail suicide.

Anno et al. (18) noted, "It is difficult to come to any conclusions regarding potential suicide risk on the basis of offense alone." She found that nearly 58% of 38 suicide victims were charged with violent crimes including murder, manslaughter, sexual assault, robbery, and aggravated assault, and 42% were charged with nonviolent crimes. Our findings are in contrast with results of jail suicide and some of the prison suicide studies. Forty-four percent of Texas prison suicide victims were charged with violent crimes, but 56% were charged with nonviolent crimes. The charges of murder or other violent crimes do not appear to be a contributing factor to the suicides. Clinicians should take all relevant factors into account when assessing an inmate's suicide risk, including psychiatric disorders and comorbid substance abuse, as well as chronic and acute stressors, not based on the criminal offense alone.

Important factors that appear to be associated with increased risk of prison suicide include: 1) previous and current psychiatric disorders, especially psychotic disorders, mood disorders, and antisocial or borderline personality disorders; 2) pre-sentencing and/or comorbid substance abuse; 3) a history of suicide attempt; and 4) chronic and acute stressors.

Our study provides findings that go beyond the demographics or history of mental illness of suicide victims. Beyond reporting presentencing psychopathology in suicide victims, this study also details presuicide psychiatric illness. This approach may eventually improve the ability of prison mental health professionals and prison staff to successfully discriminate those at highest risk from the general incarcerated population. Hopefully these findings contribute to a better understanding of prison suicide and to assist in the development of effective suicide prevention programs in prison.

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Additional information and reprint requests:

Xiao-yan He, M.D.
Department of Psychiatry,
University of California at Davis
2230 Stockton Boulevard
Sacramento, CA 95817