# Psychiatric Disorders, HIV Infection, and Continuity of Care following Release from Prison: Directions for Future Research

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# Psychiatric Disorders in the US Prison System

- The current epidemic of psychiatric disorders in the United States prison system represents a national public health crisis.
- Between 15% and 24% of state prison inmates have a severe mental illness.
- A number of legal, social and political factors over the last 40 years have led to this current excess.

# Causes of Psychiatric Disease Epidemic in US Prisons

1. Mass downsizing of public mental health hospitals
   - beginning in the late 1960s
2. Inadequate community-based mental health services
3. Legal systems with limited capacity to discern mental illness among lawbreakers
4. Laws that have made it difficult to commit mentally ill patients to psychiatric hospitals
5. Private hospitals' limited enrollment of psychotic patients
6. Economic pressures resulting in reduced mental health coverage
7. Lack of psychiatric continuity of care/community re-entry programs following release from prison

# Mental Health Screening in the TDCJ

- All TDCJ inmates undergo medical and psychiatric examinations during the intake process.
- This evaluation lasts approximately 60 minutes and consists of a detailed medical history, a mental health screening, a comprehensive physical examination, and a number of laboratory tests.
- A diagnosis of a psychiatric disorder established during this evaluation is based on DSM-IV guidelines and recorded in the inmate's electronic medical record.

## Table 1: Prevalence of psychiatric disorders in TDCJ Inmates, September 1, 2006 through August 31, 2007

| | Major Depression | Bipolar Disorder | Schizophrenia | Non-Schizophrenic Psychotic Dis. |
|---|---|---|---|---|
| **All Inmates (n=234,031)** | **4.2** (4.1- 4.3) | **2.6** (2.5- 2.7) | **1.4** (1.4- 1.5) | **2.4** (2.3- 2.5) |
| **Gender** | | | | |
| **Male (n=210,501)** | **3.5** (3.4- 3.6) | **2.3** (2.2- 2.4) | **1.5** (1.4- 1.5) | **2.4** (2.3- 2.5) |
| **Female (n=23,530)** | **10.3** (9.9- 10.7) | **5.7** (5.4- 6.0) | **0.9** (0.7- 1.0) | **2.2** (2.0- 2.4) |
| **Race** | | | | |
| **White (n=79,106)** | **6.3** (6.2- 6.5) | **5.4** (5.2- 5.5) | **1.0** (0.9- 1.1) | **2.3** (2.2- 2.4) |
| **Hispanic (n=69,001)** | **2.6** (2.5- 2.7) | **1.1** (1.0- 1.2) | **0.8** (0.7- 0.9) | **1.5** (1.4- 1.6) |
| **Black (n=85,294)** | **3.6** (3.4- 3.7) | **1.3** (1.2- 1.4) | **2.3** (2.2- 2.4) | **3.1** (3.0- 3.2) |
| **Age (years)** | | | | |
| **16-29 (n=74,773)** | **3.2** (3.1- 3.4) | **2.3** (2.2- 2.4) | **0.7** (0.6-0.7) | **1.6** (1.5- 1.7) |
| **30-49 (n=128,242)** | **4.7** (4.6- 4.8) | **3.0** (2.9- 3.1) | **1.6** (1.5- 1.7) | **2.8** (2.7-2.9) |
| **≥50 (n=31,013)** | **4.5** (4.2- 4.7) | **1.9** (1.8-2.1) | **2.3** (2.1- 2.4) | **2.7** (2.5- 2.9) |

# Prevalence of Psychiatric Disorders

- Compared with estimates from general population studies, most of the psychiatric disorders in the TDCJ inmate population are substantially elevated.
  - General Population Estimates (ECA study)
    - major depression, 2.7%
    - bipolar disorder, 0.7%
    - schizophrenia, 1.0%

# Prevalence of Psychiatric Disorders

- The rates of schizophrenia and major depression observed in this study cohort were within the range of estimates reported in previous incarcerated populations
  - Previous Correctional Studies
    - schizophrenia: 0.8-3.0%
    - major depression 3.5- 9.2%

# Prevalence of Psychiatric Disorders

- The prevalence of bipolar disorder observed in TDCJ (2.6%), however, was somewhat higher than that reported in previous prison studies (0.7-2.1%)
- It is difficult to draw direct comparisons from study to study because previous studies may have demonstrated different distributions of gender, race, and substance abuse as well as different methods of assessment.

# Delivery of Mental Health Care in the US Prison System

- The US Prison system:
  - now serves as the principal screening and treatment venue for millions of individuals who are out of the conventional mental health care system's reach.
  - has a unique opportunity to deliver mental health services for many individuals whose mental illness might remain undiagnosed and untreated.

# Chronic Recidivism among the Mentally Ill

- A large majority of mentally ill inmates who are identified and treated in prison fail to initiate and continue mental health treatment following release from prison.
- Many of these individuals move continuously between homelessness and the criminal justice system in what has become a revolving door phenomenon.

**TABLE 3. Risk of Previous Incarcerations Among Inmates According to Presence of a Psychiatric Disorder[a]**

| | ≥1 incarcerations | | ≥2 incarcerations | | ≥3 incarcerations | | ≥4 incarcerations | |
|---|---|---|---|---|---|---|---|---|
| | % | OR (CI) | % | OR (CI) | % | OR (CI) | % | OR (CI) |
| **No major psychiatric disorder** | 38.7 | Ref | 12.2 | Ref | 3.6 | Ref | 1.1 | Ref |
| **Any major psychiatric disorder** | 50.7 | 1.8 (1.7, 1.9) | 20.1 | 2.0 (1.8, 2.4) | 7.0 | 2.2 (1.9, 2.3) | 2.7 | 2.6 (2.1, 2.8) |
| **Major depressive disorder** | 48.5 | 1.6 (1.5, 1.7) | 17.9 | 1.7 (1.5, 1.8) | 5.5 | 1.6 (1.4, 1.9) | 2.0 | 1.8 (1.4, 2.3) |
| **Bipolar disorders** | 50.9 | 1.8 (1.7, 1.9) | 20.9 | 2.2 (2.0, 2.4) | 8.0 | 2.7 (2.3, 3.2) | 3.3 | 3.5 (2.7, 4.5) |
| **Schizophrenia** | 51.2 | 1.5 (1.3, 1.7) | 19.7 | 1.6 (1.3, 1.9) | 6.8 | 1.7 (1.3, 2.2) | 2.6 | 2.0 (1.3, 3.0) |
| **Non-schizophrenic psychotic disorders** | 54.8 | 1.9 (1.7, 2.1) | 23.9 | 2.2 (1.9, 2.5) | 8.7 | 2.4 (2.0, 2.9) | 3.2 | 2.6 (1.9, 3.6) |

[a] Odds ratios were adjusted for gender, age, race, current and previous violent criminal offense classification, and duration of current sentence.

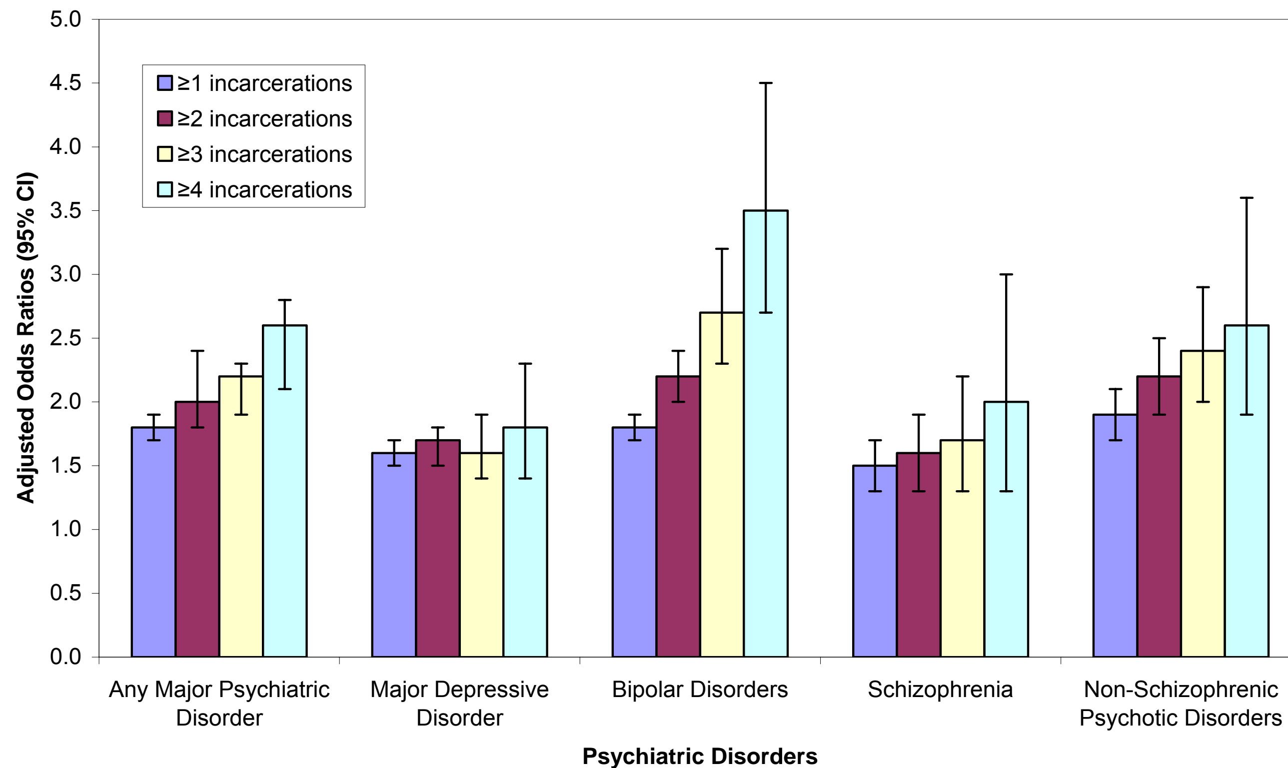
FIGURE 1. Risk of Previous Incarcerations Among Inmates According To Presence of a Psychiatric Disorder
Adjusted Odds Ratios (95% CI)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
≥1 incarcerations
≥2 incarcerations
≥3 incarcerations
≥4 incarcerations
Any Major Psychiatric Disorder
Major Depressive Disorder
Bipolar Disorders
Schizophrenia
Non-Schizophrenic Psychotic Disorders
Psychiatric Disorders

# Proposed Investigation

- We propose a historical cohort study involving the TDCJ- the largest state prison system in the US- to assess predictors of initiating and maintaining mental health and substance abuse treatment following release from prison.

# Study Cohort

- Our study cohort will consist of 80,000 inmates who were released during 2006.
- All inmates will be followed for:
  - 12 months after release to assess intermediate outcomes:
    - initiation of mental health
    - substance abuse treatment
  - 24 months after release to assess long-term outcomes
    - Recidivism
    - Psychiatric Hospitalization
    - Mortality

# Data Sources

- TDCJ Electronic Medical Record
- Texas Department of State Health Services client assignment and registration (DSHS-CARE) database
- Texas Department of State Health Services Behavioral Health Integrated Provider System (DSHS-BHIPS)

# Specific Aim 1

1. To identify diagnostic, demographic, and behavioral predictors of initiation and maintenance of outpatient mental health and substance abuse treatment following release from prison.

# Representative Hypotheses

- Released inmates with dual diagnoses will have lower rates of mental health treatment initiation than those with mental health disorders alone.
- Released inmates who live in rural areas will have lower rates of substance abuse and mental health treatment initiation than those who live in urban areas.

# Specific Aim 2

- To assess variation in correctional recidivism, psychiatric hospitalization, and mortality according to the initiation and maintenance of outpatient substance abuse and mental health care.

# Representative Hypotheses

- Released inmates with major psychiatric disorders who fail to initiate outpatient mental health treatment within 6 months after prison release will have a higher rates of recidivism than inmates who initiate such treatment.
- Released inmates with major psychiatric disorders who fail to initiate outpatient mental health treatment within 6 months after prison release will have a higher rates of mortality than inmates who initiate such treatment.

# Re-entry among Inmates with Psychiatric Disorders and HIV Infection

# HIV in US Prisons

- The US prison system has become an important front in the effort to control HIV
- The disproportionate burden of HIV among inmates presents a challenge and a tremendous public health opportunity.
- Many inmates are offered HIV testing for the first time while incarcerated.
- 75% of HIV-infected inmates initiate anti-retroviral treatment while incarcerated.

# Psychiatric Disorders and HIV

- Psychiatric disorders may underlie the high rates of HIV in prison populations by way of
  - Injection drug use
  - increased rates of high-risk sexual behaviors
    - Multiple sex partners
    - Sex in exchange for money or drugs
    - Having sex with persons with whom they are unfamiliar
    - Having sex while under the influence of drugs or alcohol

# Psychiatric Disorders and HIV

TABLE 2. Prevalence of psychiatric disorders in the TDCJ prison system according to HIV infection status and gender

| | Overall (n = 336,668) | Infected (n = 4,910) | Not infected (n = 331,758) | Prevalence odds ratio/ 95% CI |
|---|---|---|---|---|
| All inmates (n = 336,668) | | | | |
| Major depression | 2.21 | 6.05 | 2.16 | 2.92 (2.59–3.29) |
| Dysthymia | 0.76 | 3.24 | 0.72 | 4.62 (3.93–5.44) |
| Bipolar disorder | 0.99 | 1.51 | 0.98 | 1.54 (1.22–1.94) |
| Schizophrenia | 0.98 | 1.75 | 0.97 | 1.83 (1.47–2.27) |
| Schizoaffective disorder | 0.54 | 1.12 | 0.53 | 2.11 (1.61–2.77) |
| Non-schiz. psychotic disorders | 0.58 | 2.24 | 0.55 | 4.12 (3.40–5.01) |

# Psychiatric Disorders and HIV

- A number of characteristics may **drive** these risk behaviors
  - Limited impulse control
  - Difficulties establishing stable social and sexual relationships
  - Limited knowledge about HIV-related risk factors
  - Increased susceptibility to coercion
  - Comorbid alcohol and drug abuse

# Psychiatric Disorders and HIV

- Consider an alternative direction of causality
  - Infection with HIV may contribute to the development of some mental problems:
    - Systemic disease
    - Medications
    - Psychosocial factors

# Decreased Medication Adherence following Release from Prison

- HIV-infected prison inmates adhere to antiretroviral therapy and have positive treatment results during incarceration.
- These effects are not sustained following their release into the general community.
- In fact, offenders return to prison with higher viral loads and lower CD4 counts than when they were released.
- This indicates that a large proportion of offenders stop HIV treatment following their release from prison.

# Decreased Medication Adherence following Release from Prison

- The offender's release from prison represents a move from a highly structured environment in which clinical care and administration of medications can be supervised to a setting in which multiple social and psychological factors adversely affect adherence and access to care.

# Decreased Medication Adherence following Release from Prison

- Numerous studies have shown that ex-offenders' successful response to ART in prison is frequently not sustained following their release to the general community
- *Springer et al*. reported that HIV-infected offenders who were released and subsequently reincarcerated exhibited a mean CD4 lymphocyte count decrease of 80 lymphocyttes/µL and an increase in mean viral load of 1.14 log ($p < 0.001$)

# High-Risk Behavior among Released Inmates

- Studies of released HIV-infected inmates indicate that the majority of ex-offenders engage in high-risk sexual activity and drug use following release
  - This may lead to multi drug-resistant HIV in the general community.
- Because higher viral burden also predicts greater infectiousness, ex-offenders who fail HAART may be more likely to infect their contacts.

# Psychiatric Disorders and Adherence

- Psychiatric disorders have been linked to poor antiretroviral medication adherence in numerous studies.
- HIV patients with a history of psychiatric disease are significantly more likely to delay initiation of pharmacotherapy compared to those without depression.

# Public Health Impact

- Because the majority of offenders are incarcerated for less than 3 years, identifying and understanding the extent to which psychiatric disease decreases the likelihood of establishing and maintaining effective HIV outpatient care following release from prison is an important public health issue.

# Specific Aims

1. To assess whether ex-offenders with psychiatric disorders are less likely to establish outpatient HIV care in the 6 months following release from prison.
2. To assess whether released HIV-infected ex-offenders with psychiatric disorders have poorer overall clinical outcomes than ex-offenders without psychiatric disorders.