

Prevalence of Mental Illnesses in U.S. State Prisons: A Systematic Review

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Abstract

Objective: People with mental illnesses are understood to be overrepresented in the U.S. criminal justice system, and accurate prevalence estimates in corrections settings are crucial for planning and implementing preventive and diversionary policies and programs. Despite consistent scholarly attention to mental illness in corrections facilities, only two federal self-report surveys are typically cited, and they may not represent the extent of relevant data. This systematic review was conducted to develop a broader picture of mental illness prevalence in U.S. state prisons and to identify methodological challenges to obtaining accurate and consistent estimates. **Methods:** MEDLINE, PsycINFO, the National Criminal Justice Reference Service, Social Services Abstracts, Social Work Abstracts, and Sociological Abstracts were searched. Studies were included if they were published between 1989 and 2013, focused on U.S. state prisons, reported prevalence of diagnoses and symptoms of DSM axis I disorders, and identified screening and assessment strategies. **Results:** Twenty-eight articles met inclusion criteria. Estimates of current and lifetime prevalence of mental illnesses varied widely; however, the range of prevalence estimates for particular disorders was much greater and tended to be higher in prisons than in community samples. **Conclusions:** Definitions of mental illnesses, sampling strategies, and case ascertainment strategies likely contributed to inconsistency in findings. Other reasons for study heterogeneity are discussed, and implications for public health are explored.

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1 Introduction

People with mental illnesses are overrepresented in the criminal justice system in the United States. This includes jails and prisons as well as probation or parole supervision in the community (1-7). These settings are rarely appropriate for psychiatric treatment (8). For people with mental illnesses who face inordinate poverty, unemployment, crime, victimization, family breakdown, homelessness,

substance use, general health problems, and stigma (9-11)—contact with the criminal justice system can exacerbate social marginalization, disrupt treatment and linkage to service systems or represent the first occasion for treatment. For the corrections system, which was not designed or equipped to provide mental health services, the high prevalence of people with mental illnesses has capacity, budgetary, and staffing ramifications; high numbers of people with mental illnesses affect the provision of constitutionally mandated treatment “inside the walls,” community transition planning and reentry services, and community corrections caseload. More generally, mental illness (and co-occurring substance use disorders) represents a substantial component of the public health burden of mass incarceration—a phenomenon where structural inequalities in race, social class, crime, health, and social services intersect.

The overrepresentation of people with mental illnesses in the corrections system has received consistent scholarly and political attention. Lawmakers, administrators, practitioners, and advocates all depend on valid and reliable estimates of the prevalence of mental illnesses in corrections settings to plan and implement policy and programmatic responses. Such estimates are frequently presented as preambles to policy monographs, white papers, and grant programs that propose or fund efforts to reduce the number of people with mental illnesses in contact with the criminal justice system (12). Yet, only a few studies and federal reports are typically cited, and these may not represent the extent of relevant data.

Among this handful, two reports by the U.S. Bureau of Justice Statistics (2,3) have been cited at least 1,100 times, according to a recent query of Google Scholar. These reports used self-report surveys and defined mental illnesses as a current mental or emotional condition, a prior overnight stay in a “mental hospital,” or endorsement of symptoms of mental disorders in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (13). Prevalence estimates were three to 12 times higher than in community samples, reaching as high as 64%.

Given the role that such prevalence estimates play in framing programs and policies, past research has sought to inventory and integrate findings from a broader sampling of studies that used more robust case ascertainment strategies. At least seven prior systematic (14-18) and nonsystematic (19,20) literature reviews or meta-analyses have been published in the past two decades. These reviews, however, tend to include studies that predate the policies that would contribute to the present program of mass incarceration (the “War on Drugs” and “three strikes” laws [21]), include international findings, combine jail and prison estimates, or focus on a single disorder or on few disorders. The most recent is an important meta-analysis, based on pooled jail and prison data, that provides summary estimates for the prevalence of psychotic disorders and major depression among 33,588 incarcerated individuals worldwide (14). This analysis puts mental illness and incarceration in a global context and addresses high levels of heterogeneity between studies with sophisticated techniques.

In the United States, however, the criminal justice system and mass incarceration are institutions with unique racialized, economic, and political contexts

that make cross-country comparisons difficult. Furthermore, prisons and jails are functionally discrete, and the two should not be conflated by researchers, as they entail different mitigation strategies from a public health perspective. [The data supplement outlines key differences between jails and prisons.] The purpose of this report is therefore to summarize and synthesize research on the prevalence of mental illnesses in U.S. state prisons. This systematic review is intended to add to the existing body of literature by being both more inclusive and restrictive than prior reviews—allowing for studies not necessarily focused on mental illness and limiting review to state prisons in the United States. This review also explores methodological issues that continue to make obtaining accurate prevalence estimates a challenge for researchers and policy makers alike.

2 Methods

A systematic review of the scholarly literature was conducted to identify studies that presented prevalence estimates of mental illnesses in prisons. Articles were included if they were published in peer-reviewed, English-language journals between January 1989 and December 2013, focused on U.S. state prisons, reported prevalence estimates of diagnoses or symptoms of DSM axis I disorders, and clearly identified the denominator for prevalence proportions. Articles were excluded if they did not present original data; focused solely on axis II disorders, youths, jails, or foreign prisons; selected samples only of people with mental illnesses or substance use disorders; presented only combined jail and prison prevalence estimates; did not present prevalence estimates (for example, presented only mean scale scores or odds ratios for disorders); or the denominator for prevalence estimates was not apparent. Samples selected on the basis of substance use were excluded given the high rates at which substance use disorders co-occur with mental illnesses among incarcerated individuals (1,22), which would therefore not provide good estimates of mental illnesses per se. A review of the prevalence of substance use disorders in prisons was beyond the scope of this report.

MEDLINE, PsycINFO, the National Criminal Justice Reference Service, Social Services Abstracts, Social Work Abstracts, and Sociological Abstracts were searched. For MEDLINE and PsycINFO, combinations of the following medical subject headings (MeSH) were used: mental disorders, mental health, prevalence, incidence, epidemiology, psychotropic drugs, drug therapy, prisons, and prisoners. For the remaining databases, similar keyword combinations, including axis I disorder terms, were searched.

All articles were uploaded into EndNote34 software. Duplicate entries were identified with the software's deduplication function, and entries were then sorted alphabetically by title to visually identify any missed duplicates. The initial search yielded 3,670 nonduplicated articles. Based on titles and abstracts, 3,388 articles did not meet inclusion criteria and were excluded. All articles published between January 1989 and December 2013 contained in previous reviews or meta-analyses were captured in this search. Full texts of the 282 remaining

articles were reviewed, and an additional 254 studies were rejected based on exclusion criteria outlined above, one of which (23) was excluded because it re-reported findings from an earlier study included below. Twenty-eight articles were thus included in the review. In rare cases, prevalence proportions were recalculated for this review when a more appropriate denominator was reported (for example, the general facility population rather than a subpopulation). Approximations for summary prevalence estimates were calculated by taking weighted means of all reported diagnoses (any mental illnesses) and of major depression, bipolar disorder, schizophrenia, schizoaffective disorder, and psychotic disorder (serious mental illnesses). Figures were created in R, version 3.1, with the ggplot2 package (24).

3 Results

Researchers characterized the prevalence of mental illnesses in prisons in three main ways: as a broad category of unspecified psychiatric disability, or “mental health problems,” resulting in four studies (Table 1) (25-28); as a diagnosis of a DSM-defined psychiatric disorder, which yielded 19 studies (Table 2) (29-47); and as cut points on scales of symptoms or psychiatric distress, which yielded five studies (Table 3) (48-52).

Tables 1-3 also present key information on each of the 28 studies in addition to prevalence estimates: facility type (single prison versus all prisons in a given state), target sample (men, women, general prison population, or some special prison subpopulation), method of case ascertainment (from case files or a particular screening or diagnostic instrument), diagnostic classification system, and current versus lifetime prevalence. [Expanded versions of the tables are available in the online data supplement.] Of the 19 studies that presented prevalence estimates of DSM diagnoses, five presented estimates of diagnosis groupings that could not be disaggregated (see supplemental Table 3).

Estimates of the current and lifetime prevalence of mental illnesses in state prisons varied widely. For example, in this review, estimates for current major depression ranged from 9% to 29%; for bipolar disorder, from 5.5% to 16.1%; for panic disorder, from 1% (women) to 5.5% (men and women) to 6.8% (men); and for schizophrenia, from 2% to 6.5%. Figure 1 summarizes current prevalence estimates for all studies that presented findings for psychiatric diagnoses (Table 2 and supplemental Table 3). Figure 2 separates the results from Table 2 and supplemental Table 3 by studies that presented findings on men, men and women, and women, respectively. As a point of comparison, Figures 1 and 2 also display the range of prevalence estimates for select disorders from major community surveys of mental illnesses: the Epidemiologic Catchment Area survey (53-55), the National Comorbidity Survey (56,57), the National Comorbidity Survey Replication (58-60), the National Epidemiologic Survey on Alcohol and Related Conditions (61-64), and the National Survey on Drug Use and Health (65). For example, in Figure 1, seven studies provided prevalence estimates for having attention deficit hyperactivity disorder in prison, which ranged from

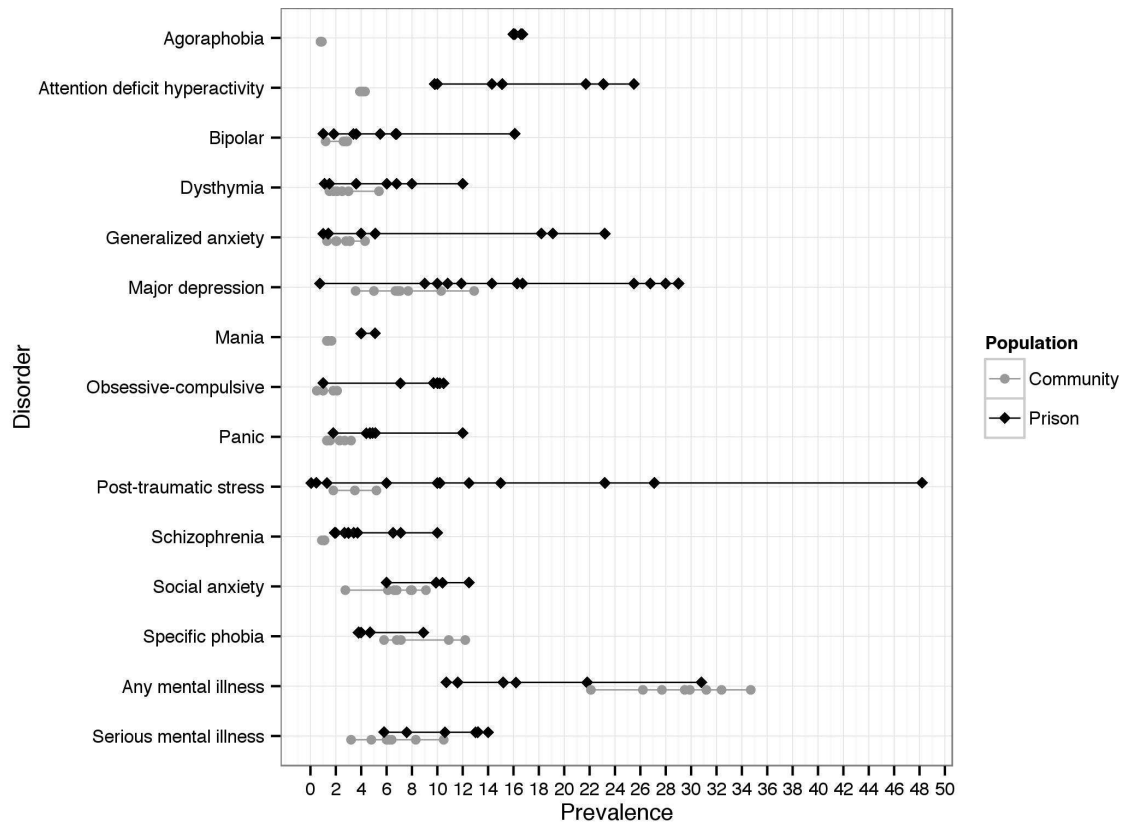


Figure 1: Prevalence estimates of psychiatric disorder diagnoses from 19 studies. Each diamond (prison) and circle (community) represents an estimate from a single reviewed study. Community estimates are from the Epidemiologic Catchment Area survey, the National Comorbidity Survey, the National Comorbidity Survey Replication, the National Epidemiologic Survey on Alcohol and Related Conditions, and the National Survey on Drug Use and Health. Lines are visual aids for the range of estimates.

approximately 10% to 25%. It is clear from Figures 1 and 2 that community prevalence estimates tended to fall near or below the low end of the range of prison prevalence estimates, and the range of prevalence estimates tended to be greater in prisons than in the community.

Figure 1 also shows prevalence estimates for any mental illness and serious mental illness (57,65-67). These are shown with estimates from community surveys for comparison. Estimates of any mental illness were calculated by taking weighted means from Table 2 and supplemental Table 3 of all disorder diagnoses. It must be noted that, although reviewed studies do not include diagnoses of substance use disorders, it was not possible to exclude these disorders from most community comparisons of any mental illnesses. Estimates of serious mental illness were calculated by taking weighted means from Table

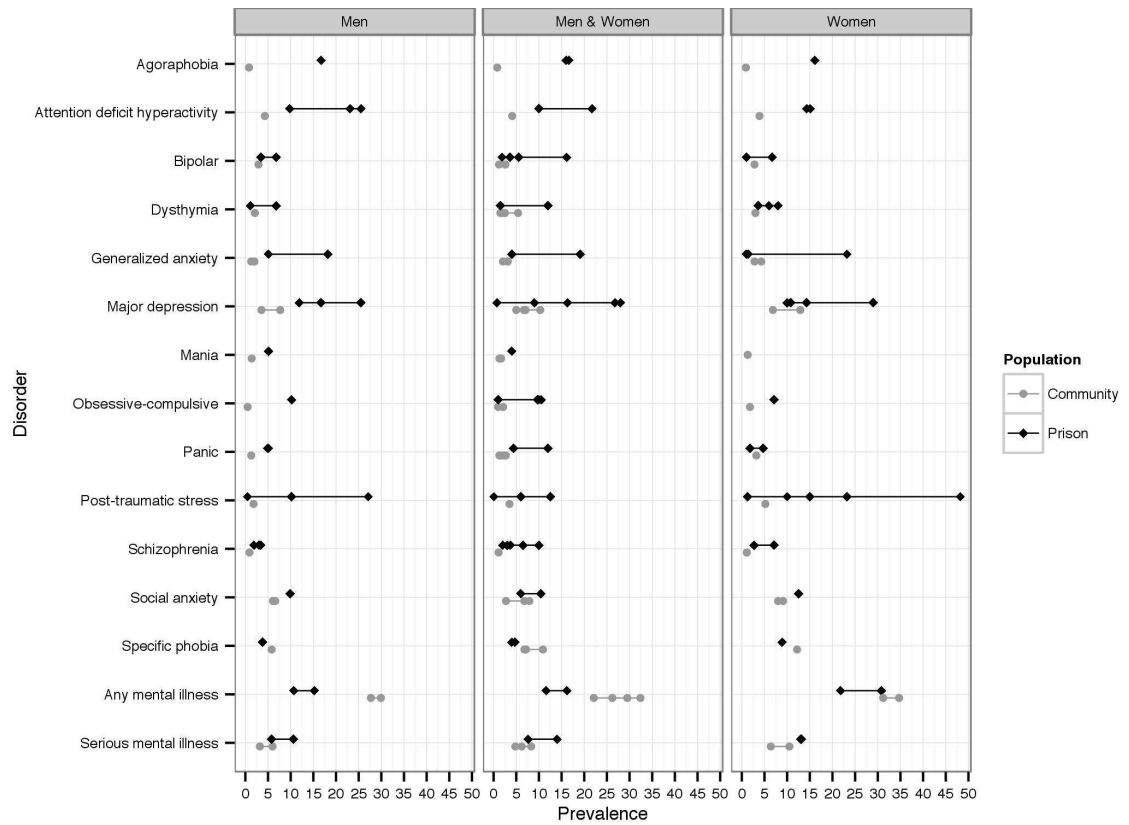


Figure 2: Prevalence estimates of psychiatric disorder diagnoses, by gender. Each diamond (prison) and circle (community) represents an estimate from a single reviewed study. Community estimates are from the Epidemiologic Catchment Area survey, the National Comorbidity Survey, the National Comorbidity Survey Replication, the National Epidemiologic Survey on Alcohol and Related Conditions, and the National Survey on Drug Use and Health. Lines are visual aids for the range of estimates.

2 and supplemental Table 3 of major depression, bipolar disorder, schizophrenia, schizoaffective disorder, and psychotic disorders. Because one study (29) was much larger ($N=170,215$) than the others, it exerted appreciable influence on the weighted means; thus weighted means for any mental illness and serious mental illness were also calculated after excluding this study to provide the high end of the range for these categories in Figures 1 and 2. Because no measure of functional impairment was available in most studies and definitions of serious mental illness varied across surveys, caution is warranted in making inferences from these comparisons.

Several of the studies reviewed are notable for strong methodology. In one study (41), researchers used the Structured Clinical Interview for DSM-IV Disorders (SCID) (68) and found prevalence estimates of posttraumatic stress dis-

order (PTSD) (15%), major depression (10%), and dysthymia (8%) among incarcerated women that were mostly higher than estimates for the general population. Another study (47), however, used the SCID and clinician-administered assessment interviews and found the prevalence of PTSD among incarcerated women to be 48.2%. Another study (42) used the Composite International Diagnostic Interview (69) with reinterviews by clinicians and found prevalence estimates of major depression (10.8%), generalized anxiety disorder (1.4%), and panic disorder (4.7%) among incarcerated women that were similar to or higher than those in the general population. Using the Minnesota Multiphasic Personality Inventory (70) followed by clinical interviews, another study (30) found prevalence estimates of major depression among incarcerated women to be 29%.

4 Discussion

This systematic review summarized 28 studies, published between January 1989 and December 2013, of the prevalence of mental illnesses in prisons in 16 states. As a result of inclusive search criteria, this review contains data on the prevalence of mental illnesses among incarcerated subpopulations such as HIV-positive women, individuals aged 55 and older, suicide attempters, and persons under administrative segregation (that is, separated from other inmates for various reasons). This review presents a detailed summary of key study characteristics that may be of interest to researchers, policy makers, and practitioners. These details are likely implicated in the overall inconsistency in findings. Nonetheless, reviewed studies generally confirm what researchers, policy makers, practitioners, and advocates have long understood: the current and lifetime prevalence of numerous mental illnesses is higher among incarcerated populations than in non-incarcerated populations, sometimes by large margins. Yet, the wide variation in prevalence found among even the more robust studies reviewed here warrants caution against generalizations from any single study. Furthermore, with the heterogeneity in samples, states, facilities, study designs, and diagnostic instruments represented in this review, drawing anything more than broad conclusions about the veracity of particular prevalence estimates relative to others would be inappropriate. For example, studies that used validated instruments followed by clinical interviews were likely to be more robust than those that used only correctional health records.

Explaining the lack of consistency among prevalence estimates is no easy task; however, two likely contributing factors warrant discussion here. These can be characterized as issues of measurement and selection. Measurement issues are artifacts of the research process and can be inferred from the characteristics of the studies summarized in this review, whereas selection issues represent “real” phenomena about which one can only speculate based on the data presented here.

In regard to measurement, methodological differences in the definition of mental illness, sampling strategies, and case ascertainment strategies may explain a significant amount of the variation across studies. Measurement differ-

ences may arise from a divergence in the disciplinary orientations of researchers and the constraints on access and other resources inherent in conducting research in institutions that are organized for separation, security, and control. Researchers with a forensic orientation, for example, may be less interested than community mental health researchers in strict adherence to DSM-IV diagnostic criteria because the primary concern of forensically oriented researchers may be in identifying administrative needs and population management risks. Researchers may be granted limited access to a single correctional institution or to records for an entire statewide system that contain only rough proxies for mental disorders. During primary data collection, intake procedures may limit the time that can be spent on screening and assessment, which may limit the type of personnel (lay versus clinician) and instruments or scales (screens versus structured diagnostic interviews) that can be used. Indeed, in this review, over a dozen different case ascertainment strategies are represented, each with its own strengths and weaknesses in regard to diagnostic reliability and validity (71). Furthermore, these instruments were based on at least five variations of psychiatric nosology, from DSM-III through DSM-IV-TR and the ICD-10.

Another source of variation in prevalence estimates may stem from differential “selection into prison,” which can be conceptualized as the real forces that influence the “base” or “source” populations that contribute to the composition of prison populations in different jurisdictions. These selection forces are likely determined by myriad macro- and meso-level factors beyond individuals propensity for arrest or crime. These include, but are not limited to, the demographic composition of state populations more broadly, political-economic arrangements and trends, criminal codes (such as those that concern drug policies), corrections policies, mental health and substance abuse treatment policies and availability of services, housing policies, policing strategies, and so on.

Of particular interest for criminal justice and mental health policy makers and practitioners is the question of whether increased access to treatment services would reduce the number of people with mental illnesses (and co-occurring substance use disorders) in corrections settings (72). If one accepts the logic that lack of treatment causes people with mental illnesses to make contact with prisons, then states that (on average) provide more and better treatment for co-occurring disorders should have a lower prevalence of mental illnesses in prisons. This is an empirical question that was beyond the scope of this review. Nonetheless, two aspects of this selection issue deserve consideration. First, state prison populations are less “local” than county or municipal jail populations, because state prisons typically receive individuals from across a state. If mental health and substance abuse treatment access and utilization affect the prevalence of mental illnesses in prisons, prison composition is likely to reflect the average impact of these services across numerous jurisdictions within a state. Second, most people in the United States with serious mental illnesses, including substance use disorders, do not receive treatment (73-75). For these individuals, contact with the criminal justice system may represent the first occasion for any treatment services (8). Given within- and between-state differences in service quality and access (across urban and rural areas, for example), the impact of

these services—or lack thereof—on the prevalence of mental illnesses in prisons may not be straightforward.

One limitation of this review is that it did not include studies that used proxy indicators of mental illnesses, such as corrections department expenditures on medication or clinical staffing. Although treatment is an imperfect proxy for the presence of mental illnesses, in that prevalence estimates based on treatment reflect well-documented disparities in access and utilization (74-76), a systematic review of this literature would nonetheless be worthwhile to draw special attention to budgetary issues. Another limitation is that this review did not include gray literature, because the review was designed to focus on peer-reviewed publications. With 50 states, at least 50 departments of corrections with varying degrees of data unification and reporting standards, and varying numbers of prisons per state, systematically obtaining unpublished or low-circulation reports from these agencies and facilities was beyond the scope of this review. Such a project clearly would be a crucial component of future research.

Reasons for the high prevalence of mental illnesses in prisons have been explored in depth elsewhere (8,10,77-81). In response, specialized programs have been in effect for over a decade that are designed to divert people with mental illnesses from contact with law enforcement, courts, and corrections to the community; to improve reentry after incarceration; and to reduce recidivism (82-86). Despite these efforts, the prevalence of mental illnesses in prisons remains high. Our ability to accurately measure the impact of such programs, in addition to changes in more fundamental causes of the prevalence of mental illnesses in prisons (such as drug policies), depends largely on the sorts of estimates summarized in this review. Also of interest to policy makers and practitioners is the fact that most of the roughly 2.3 million incarcerated individuals in the United States (87) will be released, contributing to the approximately 4.8 million individuals a majority of the U.S. corrections population who reside in the community on probation and parole (88). About 43% of these individuals will be detained again within three years (89). As such, accurately measuring the prevalence of mental illnesses “inside the walls” is essential for community corrections planning. Given the existence of brief, well-validated instruments that screen for mental illnesses, such as the Brief Jail Mental Health Screen (90), K6 (67), and Correctional Mental Health Screen (91), reporting standards for routine assessments upon intake are clearly feasible. Even in the absence of such standards, prison administrators, working in collaboration with mental health policy makers and practitioners, can (at relatively low cost) calibrate such screening instruments to their populations and begin collecting valid and reliable prevalence estimates.

5 Conclusions

Incarceration creates or exacerbates chronic incapacitation among those who experience it and their families and communities well beyond the effects of mental

illness (92). Incarcerated individuals are at increased risk of HIV/AIDS and other sexually transmitted infections, hepatitis, tuberculosis, sexual violence, drug use, and suicide (92). Incarcerated populations are now aging populations, with sentences increasingly exceeding life expectancies (92). Material and psychosocial consequences are also grim; many formerly incarcerated individuals are denied public housing, employment in numerous fields, income support, education subsidies, supplemental nutrition assistance, and participation in civic institutions such as jury duty and political franchise (92). These concerns have public health ramifications in and of themselves but have additional implications for individuals with mental illnesses, who already face numerous barriers to community integration (8,93). The United States incarcerates a higher rate and number of individuals than any other country (87). As such, no discussion of community mental health in the United States is complete without consideration of the prevalence of mental illness within prisons and the policies that contribute to it.

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Table 1. Prevalence estimates of mental health problems in prisons and key study characteristics from four reviewed studies^a

Reference	State	Facility type	Prison sample			Ascertainment	Diagnosis	Mental illness
			Description	N	% of facility N			
Dvoskin and Steadman, 1989 (25)	NY	State prisons	General	3,684	9.4	Survey of correctional health and mental health staff	Current	Significant psychiatric disability, 10%; severe psychiatric disability, 5%
Haugebrook et al., 2010 (26)	NJ	State prisons	Adults aged ≥55	114	12 ^b	Case records	NR	Mental health issue, 36%
Staton et al., 2003 (27)	KY	Correctional institute for women	Women	60	NR	Addiction Severity Index	Lifetime	Major depression, 61.7%; ever prescribed psychotropic medication, 40%; generalized anxiety, 53.3%
Tripodi and Pettus-Davis, 2013 (28)	NC	2 state prisons	Women	125	8.3	Addiction Severity Index	Lifetime	Ever hospitalized for mental health problems, 27.6%

^aNR, not reported

^bPercentage of population aged ≥55

Table 2. Prevalence estimates of diagnosed psychiatric disorders in prisons and key study characteristics from 17 reviewed studies

Reference	State	Facility type ^a	Prison sample			Ascertainment ^c	Nosology	Diagnosis	Disorder ^d
			Description	N	% of facility N ^b				
Baillargeon et al., 2000 (29)	TX	State prisons	General	170,215	100	Physician or midlevel practitioner examination	<i>ICD-10</i>	Current	Affective disorders, 3.9%; mental disorders, 10.8%; schizophrenia, 2%
Birecree et al., 1994 (30)	OR	State prisons	Women	91	50	MMPI, Clinical interview	<i>DSM-III-R</i>	Current	Adjustment disorders, 22%; dysthymia, 6%; generalized anxiety, 1%; major depression, 29%; PTSD, 10%
Black et al., 2004 (31)	IA	MCC	General	67	NR	MINI-Plus	<i>DSM-IV</i>	Current	ADHD, 10%; agoraphobia, 16%; dysthymia, 12%; generalized anxiety, 4%; hypomania, 3%; major depression, 28%; mania, 4%; panic, 12%; psychotic, 10%; PTSD, 6%; schizophrenia, 3%; social phobia, 6%; specific phobia, 4%
Blitz et al., 2005 (32) ^e	NJ	State prisons	General	17,967	100	Corrections records	NR	Current	Bipolar, 3.6%; PTSD, .52%
Cahill et al., 2012 (33)	CO	State prisons	General	3,962	NA	Coolidge Correctional Inventory	<i>DSM-IV-TR</i>	Current	ADHD, 10.5%
Collins and Bailey, 1990 (35) ^f	NC	State prisons	Male felons	1,140	NR	DIS plus additional PTSD measures	<i>DSM-III</i>	Lifetime	PTSD, 2.3%
Collins and Bailey, 1990 (36) ^f	NC	State prisons	Male felons	1,140	NR	DIS	<i>DSM-III</i>	Lifetime	Generalized anxiety, 3.4%; major depression, 3%
Daniel and Fleming, 2005 (37)	MO	State prisons	Suicide attempters	112	NA	Corrections records	<i>DSM-IV</i>	Current	Bipolar, 16.1%; major depression, 26.8%
DiCataldo et al., 1995 (38)	MA	Maximum security prison	General	514	89	Modified RDS	<i>DSM-III</i>	Current	Bipolar, 5.5%; major depression, 9%; schizophrenia, 6.5%
Eyestone and Howell, 1994	UT	State Prison	Men	102	NR	BDI, HRS, four measures for	<i>DSM-III-R</i>	Current	ADHD, 25.5%; major depression, 25.5%

(39)

childhood ADHD

Gunter et al., 2008 (40)	IA	MCC	General	320	NR	MINI-Plus	DSM-IV	Current	ADHD, 21.7%; agoraphobia, 16.6%; bipolar, 22.5%; dysthymia, 1.5%; generalized anxiety, 19.1%; major depression, 16.3%; OCD, 9.7%; panic, 4.4%; PTSD, 12.5%; schizophrenia, 3.7%; social phobia, 10.4%; specific phobia, 4.7%
Hutton et al., 2001 (41)	MD	Correctional institution for women	Women	177	22	SCID	DSM-IV	Current	Dysthymia, 8%; major depression, 10%; PTSD, 15%
Jordan et al., 1996 (42)	NC	Correctional center for women	Female felons	805	100	CIDI, clinical reinterview	DSM-III-R	Current	Generalized anxiety, 1.4%; major depression, 10.8%; panic, 4.7%
Lewis, 2005 (43)	CT	York Correctional Institute	HIV-positive women	81	73 ^g	SCID	DSM-IV	Lifetime	Bipolar, 3.7%; generalized anxiety, 1.2%; major depression, 48.1%; OCD, 3.7%; panic, 6.2%; schizoaffective, 1.2%; schizophrenia, 1.2%
Powell et al., 1997 (44)	NE	State prisons	Men	118	13	DIS	DSM-III-R	Current	Bipolar, 6.8%; dysthymia, 6.8%; generalized anxiety, 5.1%; major depression, 11.9%; mania, 5.1%; panic, 5.1%; PTSD, 27.1%; schizoaffective, 9.3%; schizophrenia, 3.4%
Wolff, 2005 (46) ^e	NJ	State prisons	Men	16,700	100	Corrections records	NR	Current	Schizophrenia or other psychotic disorder, 4.3%
Zlotnick, 1997 (47)	RI	Correctional institution for women	Women	85	NR	SCID, Clinician-Administered Assessment Interview for Adults	DSM-IV	Current	PTSD, 48.2%

^aMCC, Medical and Classification Center

^bNA, not applicable; NR, not reported

^cBDI, Beck Depression Inventory; CIDI, Composite International Diagnostic Interview; DIS, Diagnostic Interview Schedule; HRS, Hamilton Rating Scale of Depression; MINI-Plus, Mini Neuropsychiatric Interview-Plus; MMPI, Minnesota Multiphasic Personality Inventory; RDS, Referral Decision Scale; SCID, Structured Clinical Interview for DSM Disorders

^dADHD, attention-deficit hyperactivity disorder; OCD, obsessive-compulsive disorder; PTSD, posttraumatic stress disorder

^eSame sample, different articles

^fSame sample, different articles

^gPercentage of HIV-positive women

Table 3. Prevalence estimates of psychiatric symptoms in prisons and key study characteristics from five reviewed studies

Reference	State	Facility type	Prison sample			Ascertainment ^b	Nosology ^c	Symptoms ^d
			Description	Study N	% of facility N ^a			
Boothby and Durham, 1999 (48)	NC	State prisons	General	1,494	NR	BDI	<i>DSM-IV</i>	Moderate depression, 22%; severe depression, 5%
Conklin et al., 2000 (49)	MA	Hampden County Correctional Center	General	1,082 men; 116 women	90% (men); 10% (women)	Comprehensive health interview	NA	Moderate depression, 20% of men, 53% of women
Fogel et al., 1992 (50)	NC	Correctional center for women	Women	46	NR	STAI-S, CES-D	<i>NA/DSM-IV</i>	Clinically relevant anxiety, 57%; clinically relevant depression, 67%
O'Keefe, 2008 (51)	CO	State prisons	General	8,513	48.7	MCMI-III	<i>DSM-IV</i>	Major depression, 5%; generalized anxiety, 35%; PTSD, 8%; dysthymia, 17%; bipolar disorder, 4%; somatoform disorder, 2%; thought disorder, 3%; delusional disorder, 4%
Rowell et al., 2011 (52)	NR	Maximum security male prison	Black men	134	NR	BDI	<i>DSM-IV</i>	Moderate depression, 29%; moderate to severe depression, 11%; severe depression, 2%

^aNR, not reported

^bBDI, Beck Depression Inventory; STAI-S, Spielberger State Anxiety Inventory; CES-D, Center for Epidemiologic Studies Depression Scale; MCMI-III, Millon Clinical Multiaxial Inventory-III

^cNA, not applicable

^dAll symptoms were current, except for the Conklin study (49), which did not report on recency of symptoms.

Supplemental data for “Prevalence of Mental Illnesses in U.S. State Prisons: A Systematic Review”

Key differences between jails and prisons

	Jail	Prison
Average daily population	750,000	1,600,000
Admissions per year	13,000,000	700,000
Jurisdiction	County or City	State or Federal
Weekly turnover rate/average time served	65%	2.1 years
Adjudication status	Convicted: 38.9% Unconvicted: 61.1%	96% sentenced to more than one year
Charges	For convicted, misdemeanors/other sentences <1year	Felonies (state: violent, property; federal: drugs, weapons, immigration)
Demographics	37.8% Black, 15.8% Latino, 87% male	37% Black, 34% Latino, 93% male

Sources: Guerino P, Harrison PM, Sabol WJ. *Prisoners in 2010*. Washington DC; 2011; Minton TD. *Jail Inmates at Midyear 2010 - Statistical Tables*. Washington DC; 2011

Supplemental Expanded Tables for “Prevalence of Mental Illnesses in U.S. State Prisons: A Systematic Review”

Supplemental Table 1. Expanded prevalence estimates of psychiatric disability/mental health problems and key study characteristics from 4 reviewed studies

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Current/Lifetime	Significant psychiatric disability	Severe psychiatric disability	Mental health issue	Major depression	Ever prescribed psychotropic medication	Lifetime hospitalized for mental health problems	Generalized anxiety
Dvoskin, 1989 [25]	NY	State prisons	General	3684	9.4	Survey of correctional health and mental health staff	C	10	5					
Haugebrook, 2010 [26]	NJ	State prisons	Adults age 55 and above	114	12 ^a	Case records	NR			36				
Staton, 2003 [27]	KY	Correctional Institute for Women	Women	60	NR	ASI	L				61.7	40		53.3
Tripodi, 2013 [28]	NC	Two state prisons	Women	125	8.3	ASI	L						27.6	

^a Percentage of population aged 55 and above
ASI: Addiction Severity Index.

Supplemental Table 2. Expanded prevalence estimates of psychiatric disorder diagnoses and key study characteristics from 17 reviewed studies.

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Nosology	Current/Lifetime	ADHD	Adjustment disorders	Affective disorders	Agoraphobia	Bipolar	Dysthymia	Generalized anxiety	Hypomania	Major depression	Mania	Mental disorders	OCD	Panic	Psychotic	PTSD	Schizoaffective	Schizophrenia	Schizophrenia or other psychotic	Social phobia	Specific phobia	
Baillargeon, 2000 [29]	TX	State prisons	General	170,215	100	Physician or mid-level practitioner examination	ICD-10	C		3.9									10.8						2				
			Men	155,949	91.6			C		3.3								10										1.9	
			Women	14,268	8.4			C		10.2								19.8											
Birecree, 1994 [30]	OR	State prisons	Women	91	50	MMPI, Clinical interview	DSM-III-R	C		22			6	1		29							10						
Black, 2004 [31]	IA	Medical and Classification Center	General	67	NR	MINI-Plus	DSM-IV	C	10			16	12	4	3	28	4				12	10	6	3		6	4		
Blitz, 2005 [32] [†]	NJ	State prisons	General	17,967	100	Corrections records	NR	C					3.6										.52						
			Men	16,700	100			C			3.4														.46				
			Women	1,267	100			C			6.7															1.3			
Cahill, 2012 [33]	CO	State prisons	General	3962	NA	Coolidge Correctional Inventory	DSM-IV-TR	C	10.5																				

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Nosology	Current/Lifetime	ADHD	Adjustment disorders	Affective disorders	Agoraphobia	Bipolar	Dysthymia	Generalized anxiety	Hypomania	Major depression	Mania	Mental disorders	OCD	Panic	Psychotic	PTSD	Schizoaffective	Schizophrenia	Schizophrenia or other psychotic	Social phobia	Specific phobia	
			Men	3439				C	9.8																				
			Women	523				C	15.1																				
Collins, 1990 [35]*	NC	State prisons	Male felons	1140	NR	DIS plus additional PTSD measures	DSM-III	L														2.3							
Collins, 1990 [36]*	NC	State prisons	Male felons	1140	NR	DIS	DSM-III	L						3.4		3													
Daniel, 2005 [37]	MO	State prisons	Suicide attempters	112	NA	Corrections records	DSM-IV	C				16.1				26.8													
DiCataldo, 1995 [38]	MA	Maximum security prison	General	514	89.3	Modified RDS	DSM-III	C				5.5				9									6.5				
Eyestone, 1994 [39]	UT	State Prison	Men	102	NR	BDI, HRS, four measures for childhood ADHD	DSM-III-R	C	25.5							25.5													
Gunter, 2008 [40]	IA	Medical and Classification Center	General	320	NR	MINI-Plus	DSM-IV	C	21.7		16.6	22.5	1.5	19.1		16.3			9.7	4.4		12.5		3.7		10.4	4.7		
			Men	264	NR			C	23.1		16.7	22	1.1	18.2		16.7			10.2	4.9		10.2		3		9.9	3.8		
			Women	56	NR			C	14.3		16.1	25	3.6	23.2		14.3			7.1	1.8		23.2		7.1		12.3	8.9		

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Nosology	Current/Lifetime	ADHD	Adjustment disorders	Affective disorders	Agoraphobia	Bipolar	Dysthymia	Generalized anxiety	Hypomania	Major depression	Mania	Mental disorders	OCD	Panic	Psychotic	PTSD	Schizoaffective	Schizophrenia	Schizophrenia or other psychotic	Social phobia	Specific phobia
Hutton, 2001 [41]	MD	Correctional Institution for Women	Women	177	22	SCID	DSM-IV	C						8		10							15					
Jordan, 1996 [42]	NC	Correctional Center for Women	Female felons	805	100	CIDI, clinical re-interview	DSM-III-R	C							1.4	10.8					4.7							
Lewis, 2005 [43]	CT	York Correctional Institute	HIV-positive women	81	73.3 ^a	SCID	DSM-IV	L					3.7	1.2		48.1				3.7	6.2		1.2	1.2				
Powell, 1997 [44]	NE	State prisons	Men	118	13	DIS	DSM-III-R	C					6.8	6.8	5.1	11.9	5.1			5.1	27.1	9.3	3.4					
Wolff, 2005 [46] [†]	NJ	State prisons	Men	16,700	100	Corrections records	NR	C																		4.3		
Zlotnick, 1997 [47]	RI	Correctional Institution for Women	Women	85	NR	SCID, Clinician-Administered Assessment Interview for Adults	DSM-IV	C														48.2						

a. Percentage of HIV-positive women

* † Same sample, different articles

Abbreviations: ADHD: Attention Deficit Hyperactive Disorder. ASI: Addiction Severity Index. BDI: Beck Depression Inventory. CES-D: Center for Epidemiologic Studies Depression Scale. CIDI: Composite International Diagnostic Interview. DIS: Diagnostic Interview Schedule. DSM: Diagnostic and Statistical Manual of Mental Disorders. HRS: Hamilton Psychiatric Rating Scale of Depression. ICD-10: International Classification of Disease. MCMI-III: Millon Clinical Multiaxial Inventory-III. MINI-Plus: Mini Neuropsychiatric Interview-Plus. MMPI: Minnesota Multiphasic Personality Inventory. NR: Not reported. NA: Not applicable. OCD: Obsessive compulsive disorder. PTSD: Posttraumatic Stress Disorder. RDS: Referral Decision Scale. SCID: Structured Clinical Interview for DSM Disorders. STAI-S: Spielberger State Anxiety Inventory.

Supplemental Table 3. Expanded prevalence estimates of psychiatric disorder groupings and key study characteristics from 5 reviewed studies.

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Nosology	Current/Lifetime	Schizophrenia, psychotic disorder, delusional disorder, and dementia	Major depression, major mood disorder, depression, and dysthymia:	OCD, anxiety disorder, panic disorder, phobia, and adjustment disorders	Schizophrenia, other psychoses, depressive disorders, and bipolar spectrum disorders	Major depression, major mood disorder, bipolar disorder	Depression, dysthymia, obsessive compulsive disorder, PTSD	Panic disorder, anxiety disorder, somatoform disorders, impulse control disorders, or ADD/ADHD	"Serious Mental Illnesses"	At least one disorder	Multiple diagnoses	
Blitz, 2005 [32]†	NJ	State prisons	General	17,967	100	Corrections records	NR	C	4.5	6.3	2.6								
			Men	16,700	100				C	4.5	2.3								
			Women	1,267	100				C	4.5	18.5	6.2							
Caverley, 2006 [34]	UT	State prison	General	5700	100	Psychiatric records, Symptom Checklist-90	NR	NR				15.5							
Daniel, 2005 [37]	MO	State prisons	Suicide attempters	112	NA	Corrections records	DSM-IV	C									78.6	43.8	
Way, 2008 [45]	NY	State prisons	General	2918	NR	Medical records and clinician diagnosis	NA	C								6			
Wolff, 2005 [46]†	NJ	State prisons	Men	16,700	100	Corrections records	NR	C					6.7	2.7	2.1	10.9			

† Same sample, different articles

Abbreviations: DSM: Diagnostic and Statistical Manual of Mental Disorders. NR: Not reported. NA: Not applicable. OCD: Obsessive compulsive disorder. PTSD: Posttraumatic Stress Disorder.

Supplemental Table 4. Expanded prevalence estimates of psychiatric symptoms and key study characteristics from 5 reviewed studies.

Ref	State	Facility type	Prison sample	Study N	% of facility N	Ascertainment	Nosology	Current/Lifetime	Major depression	Generalized anxiety	PTSD	Dysthymia	Bipolar	Moderate depression	Moderate to severe depression	Severe depression	Emotional/mental problems	Clinically relevant anxiety	Clinically relevant depression	Somatiform	Thought disorder	Delusional disorder	
Boothby, 1999 [48]	NC	State prisons	General	1494	NR	BDI	DSM-IV	C						22	5								
Conklin, [49]	MA	Hampden County Correctional Center	General	1198	67	Comprehensive health interview	NA	NR									20						
																	53						
Fogel, 1992 [50]	NC	Correctional Center for Women	Women	46	NR	STAI-S, CES-D/	NA/DSM-IV	C										57	67				
			General					C	5	35	8	17	4								2	3	4
O'Keefe, 2008 [51]	CO	State prisons	Administrative segregation	9176	NR	MCMII-III	DSM-IV	C	5	36	9	17	4								1	4	7
Rowell, 2011 [52]	NR	Maximum security male prison	Black men	134	NR	BDI	DSM-IV	C						29	11	2							

Abbreviations: BDI: Beck Depression Inventory. CES-D: Center for Epidemiologic Studies Depression Scale. DSM: Diagnostic and Statistical Manual of Mental Disorders. MCMII-III: Millon Clinical Multiaxial Inventory-III. NR: Not reported. NA: Not applicable. PTSD: Posttraumatic Stress Disorder. STAI-S: Spielberger State Anxiety Inventor