Lifetime and Six-Month Prevalence of Psychiatric Disorders among Sentenced Female Offenders

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The authors determined the six-month and lifetime prevalence of psychiatric disorders among 100 consecutively admitted female offenders to a prison, using Diagnostic Interview Schedule (DIS Version III) and found high prevalence rates of schizophrenia, major depression, substance use disorders, psychosexual dysfunction, and antisocial personality disorders. The prevalence rates of these disorders were significantly higher than those of the general population. The authors note the implications of their findings for treatment of women within the correctional system.

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The three major goals of the correctional system are security, care, and rehabilitation of the inmates. Progress toward these goals is facilitated by systematic analysis of various risk factors and needs of the inmates to an institution that can provide both the required level of security and the programs to meet the identified needs. Mental health care, in addition to medical care and educational and vocational needs, plays a paramount role in achieving the goals of the correctional system. Knowledge of the prevalence of psychiatric disorders among prisoners is basic to the planning of effective mental health services within the correctional system.

Reliable and valid studies of the prevalence of psychiatric disorders among female prisoners are scarce. Coid's [1] comprehensive review of psychiatric morbidity among convicted prisoners found only two such studies.[2,3] Cloninger and Guze's study[2] of 66 convicted

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women at the time of their release from prison used a standardized interview reported by Feighner *et al.*[4] The prevalence of sociopathy was 68 percent; alcoholism, 47 percent; hysteria, 41 percent; drug dependence, 26 percent; anxiety neurosis, 11 percent; depression, 6 percent; subnormality, 6 percent; and schizophrenia, 1.5 percent. In Novick's study[3] of 120 females, primary care physicians used nonstandardized screening when the inmates arrived at the prison. Novick found the prevalence of drug dependence to be 16 percent; alcohol abuse, 5 percent; seizure disorders, 2 percent; and all other psychiatric disorders, 13 percent. As can be seen, the prevalence rates found by Cloninger and Guze at the time of release are generally higher than those found by Novick at the time of admission. The differences and their direction suggest a plausible hypothesis regarding the adverse effect of incarceration. The fact that different measures were used to identify psychiatric disorder among two different study populations prevents definitive conclusions regarding the relationship between imprisonment and mental health.

The specific aims of our study were: (1) to determine the six month and lifetime prevalence of psychiatric disorders among a group of female prisoners by age and racial subgroups; (2) to compare the prevalence rates of this institutionalized sample to the general population; (3) to determine whether prevalence rates were associated with age or race; and (4) to identify the implications of our findings with respect to the nature and extent of psychiatric services that are required for women in prison.

Methods

This study is part of a larger research project reported elsewhere[5] that evaluated the reliability and validity of the Missouri Correctional Classification System as applied to female offenders and recommended improvements in the system. Our subjects were 100 women consecutively admitted to the correctional system during a period of seven months. Convicted women spent approximately four weeks at the Classification Center before being assigned to one of the two prisons. Psychiatric interviews were usually conducted during the latter part of this period. An informed consent was obtained from each woman; none declined to participate in the study. Diagnostic data on each female inmate were gathered by using the DIS Version III.[6] The DIS is a highly structured interview guide designed to yield diagnoses according to DSM-III criteria.

All diagnoses were made both on a lifetime and six-month basis by detailed analysis of symptoms: their frequency, severity, and distribution over time. Previous studies have found that DIS results obtained by trained lay interviewers are as reliable as those obtained by clinicians.[6] After completing training in the use of DIS, one of the authors (DEW), a doctoral candidate in psychology, administered the DIS to the 100 women offenders. Although we used the complete version of the DIS as it had been used in the St. Louis site of the Epidemiologic Catchment Area study of Robins *et al.*,[7] it is important to note that the DIS covers only the major DSM-III mental disorders. We were primarily in-

terested in six-month prevalence, which would indicate current needs; however, we also collected information on lifetime prevalence so as to facilitate comparison with the St. Louis study which had reported lifetime prevalence data.

Demographic Profile of the Subjects

Mean and SD of selected characteristics were 29 years ± 8.2; IQ, 92 ± 15.4; reading level, eighth grade ± 2.5 and educational level, eleventh grade ± 2.0. Sixty-five percent of the women were white; 33 percent, black; and 2 percent, other. Thirty-one percent were single; 29 percent, married; 5 percent, widowed; 10 percent, separated; and 25 percent, divorced. Religious preferences were: none, 23 percent; Catholic, 7 percent; Protestant, 53 percent; Islamic, 3 percent; Jewish, 1 percent; no response, 13 percent. Index crimes committed by women were: social (e.g., prostitution, traffic violation, perjury, probation violation), 7 percent; drug- and alcohol-related offenses and forgery of prescription, 12 percent; property offenses (theft, burglary), 60 percent; robbery, 8 percent; and violent crimes (e.g., murder, manslaughter, rape, assault, child abuse and kidnapping), 21 percent. Some women committed more than one offense. The profile of our sample is similar to those reported by Widom[8] and to the national sample of women offenders.

Prevalence of Psychiatric Disorders

Of the 100 women studied, 90 received at least one diagnosis in Axis I. Multiple diagnoses being permitted in DIS and DSM-III, 67 percent of the women received more than one diagnosis. Table 1 gives lifetime and six-month prevalence rates of specified psychiatric disorders.

The major psychiatric morbidity in this institutionalized sample of women was alcohol abuse and/or dependence (36%), followed by drug abuse disorders (26%), and affective disorders in Axis I (22%) and antisocial personality disorder in Axis II (29%).

Schizophrenic women offenders have serious alcohol problems and sexual dysfunction. Of the seven who had schizophrenia several received additional diagnoses, the most important of which was psychosexual dysfunction,[6] followed by alcohol abuse and dependence,[5] and alcohol abuse only.[1]

Of the 21 women with nonoverlapping affective disorders, 2 had bipolar disorder and 19, depression (excluding two bipolar). Among the major depressed women, three had only depression but 16 had a multiplicity of associated diagnoses, the most important of which were substance use disorders,[14] followed by phobia[5] and pathological gambling.[1] Eleven of the major depressed women received a diagnosis of antisocial personality disorder in Axis II.

For analytic purposes alcohol abuse[10] and alcohol dependence[26] were combined, as were drug abuse[5] and dependence.[21] A relatively fine line distinguishes the physiologically dependent individuals from those who habitually drink or take drugs to excess. Most of our subjects had the more serious dependency problem. It is interesting to note that both alcohol and drug use

Table 1
Lifetime and Six-Month Prevalence of Psychiatric Disorders among 100 Female Prisoners

Diagnosis	Prevalence			
	Lifetime	95% Confidence Interval*	Six Months	95% Confidence Interval*
Schizophrenia	7	3, 14	7	3, 14
Affective disorders				
Major depression	21	13, 30	17	10, 26
Mania	2	2, 7	2	.2, 7
Substance use disorders				
Alcohol abuse/dependence	36	27, 46	10	5, 18
Drug abuse/dependence	26			
Tobacco dependence	51	41, 61	48	38, 58
Anxiety disorders				
Simple phobia	15	9, 24	0	
Phobia	24	16, 34	20	13, 29
Agoraphobia	6	2, 13		
Panic disorder	2	2, 7	2	2, 7
Obsessive compulsive disorder	6	2, 13	5	2, 11
Eating disorders				
Anorexia nervosa	1	.0135	0	
Somatization	1	.01,5	1	.01, 5
Other	1		0	
Antisocial personality disorder	29	20, 39	29	20, 39
Psychosexual dysfunction	70	60, 79	0	
Transexualism	1	.01, 5	1	.01, 5

* Estimates of a binomial distribution.

disorders were relatively evenly distributed across other diagnoses, although alcohol use disorders were far more common than drugs among these women.

Among the women having anxiety disorders there was no overlap between obsessive-compulsive disorder, agoraphobia, and panic disorder. However, the picture with regard to phobia was considerably different. Twenty-four women had some type of phobia including simple phobia,[15] social phobia,[8] and agoraphobia,[6] with some overlapping.

Of the 29 women who had antisocial personality disorders, two had only antisocial personality disorders but 27 received additional diagnoses in Axis I. They included drug abuse and/or dependence,[16] alcohol abuse and/or dependence,[12] major depression,[11] psychosexual dysfunction,[10] phobia,[6] obsessive compulsive disorder,[6] and transsexualism.[1]

Comparison with Prevalence Rates of Females in a General Population

Type of disorder The lifetime prevalence of psychiatric disorders in our group of female prisoners was compared with that reported for females in the St. Louis study.[7] Most of our prisoner subjects having come from the metropolitan areas of St. Louis and Kansas City, we believed that a comparison with those

available norms was warranted. Table 2 presents the comparison and identifies the significant differences.

In every comparison in which the differences are significant, the female prisoners have a higher prevalence than females in the general population. This is true not only for those disorders which on their face are closely related to illegal, if not criminal, behavior (e.g., substance use and antisocial personality disorders) but also for the psychoses, (e.g., schizophrenia and major depression). With the exception of mania, the infrequency of which makes the test of significance tenuous, the insignificant differences between the prison and the general populations concern the anxiety and somatoform disorders.

Age In order to compare the age-specific prevalence rates to those in the St. Louis study, we divided our sample into the same age groups reported in that study: below 25 years (n = 35), 25–44 years (n = 60), and over 45 years.[5] We excluded the latter group from analysis because of the small sample size. Table 3 reviews the comparative findings.

Schizophrenia was more common among the younger group (11.4% versus 5%) whereas major depression (21.7% versus 14.3%) and phobia (18.3% versus 8.6%) were more common in the older group. All other disorders, including antisocial personality disorders, did not differentiate between the general population and the prison group; the rates were higher in the younger prison group except for phobias, which were higher in the older prison group.

Race The fact that the St. Louis

Table 2
Lifetime Prevalence of Psychiatric Disorders for Females in St. Louis and Those In Prison

Diagnosis	St. Louis (N = 1802) Percentage	Prison (N = 100) Percentage	*p*
Schizophrenia	1.1	7	.0003
Affective disorders			
Major depression	8.1	19	.001*
Mania	1.1	2	ns
Substance use disorders			
Alcohol abuse/dependence	4.3	36	.001†
Drug abuse/dependence	3.8	26	.001‡
Anxiety disorders			
Simple phobia	9.4	15	ns§
Agoraphobia	6.4	6	ns¶
Panic disorder	2.0	2	ns
Obsessive-compulsive disorder	2.6	6	ns
Somatoform disorders Somatization	.3	1	ns
Antisocial personality disorder	1.2	29	.0001

Fisher's exact test used except as noted:
* $\chi^2 = 14.20$, $df = 1$
† $\chi^2 = 170.66$, $df = 1$
‡ $\chi^2 = 99.03$, $df = 1$
§ $\chi^2 = 3.43$, $df = 1$
¶ $\chi^2 = 0.23$, $df = 1$

Table 3
Age-Specific Lifetime Prevalence of DSM-III Disorders for Females in St. Louis and Those in Prison (<25 and 25–44 Years)

Diagnosis	St. Louis (N = 471)	Prison (N = 35)		St. Louis (N = 1233)	Prison (N = 60)	
	[<25 Years]			[25–44 Years]		
	Percentage		*p*	Percentage		*p*
Schizophrenia	0.2	11.4	.0001	1.2	5	.05
Affective disorder						
Major depression	4.5	14.3	.03	8.0	21.7	.01†
Mania	1.7	0	ns	1.6	3.3	ns
Substance use disorders						
Alcohol abuse/dependence	17.0	34.3	.02*	21.0	36.7	.01‡
Drug abuse/dependence	11.0	28.6	.006	8.3	26.7	.001§
Anxiety disorders						
Phobia	5.8	8.6	ns	8.7	18.3	.02¶
Agoraphobia	4.3	5.7	ns	4.5	6.7	ns
Panic disorder	4.9	2.9	ns	.1	1.7	ns
Obsessive-compulsive disorder	2.2	5.7	ns	2.4	5	ns
Somatization	0.3	0	ns	.1	1.7	ns
Antisocial personality disorder	4.3	31.4	.0001	5.2	30	.001‖

Fisher's exact test used except as noted:
* $\chi^2 = 6.55$, $df = 1$
† $\chi^2 = 13.55$, $df = 1$
‡ $\chi^2 = 8.25$, $df = 1$
§ $\chi^2 = 23.34$, $df = 1$
¶ $\chi^2 = 6.43$, $df = 1$
‖ $\chi^2 = 59.29$, $df = 1$

study did not provide data for black females only handicapped our comparison of black females in prison with black females in the general population. Table 4 presents the comparison, the interpretation of which is limited by the fact that the black female prisoners are being compared to a black population of both males and females.

While schizophrenia, major depression, alcohol and drug use, phobia, and antisocial personality disorders were significantly more common among the prison nonblacks than the St. Louis nonblacks, only drug use disorder, obsessive-compulsive disorder and antisocial personality disorder were more prevalent among the prison blacks.

Education The range of educational level attained by our prison populations was too limited for any comparison. Only four prisoners had attended college.

Demographic Characteristics and Prevalence in the Prison Population

Age Within the female prisoner group, we examined the relationship of age to the existence or nonexistence of recent disorder, ignoring tobacco abuse. Table 5 presents the distribution.

For the purpose of analysis, the age categories were collapsed to three: less than 30; 30–34; 35 and over, The probability associated with an χ^2 of 1.74 was

Table 4
Race-Specific Lifetime Prevalence of DSM-III Psychiatric Disorders for St. Louis (Male and Female) and Prison (Female)

Diagnosis	St. Louis Non-Black (N = 1846)	Prison Non-Black (N = 66)		St. Louis Black (N = 1158)	Prison Black (N = 34)	
	Percentage	Percentage	*p*	Percentage	Percentage	*p*
Schizophrenia	1.0	9.1	.0001	1.0	2.9	ns
Affective disorder						
Major depression	5.7	22.7	.0001	4.9	11.8	ns
Mania	0.07	3.0	ns	2.5	0	ns
Substance use disorders						
Alcohol abuse/dependence	16.0	42.4	.0001*	14.7	23.5	ns†
Drug abuse/dependence	5.3	24.2	.0001	6.4	29.4	.0001
Anxiety disorders						
Simple phobia	5.9	15.2	.006	11.1	14.7	ns
Agoraphobia	4.1	3.0	ns	4.4	11.8	ns
Panic disorder	1.6	3.0	ns	1.1	0.0	ns
Obsessive-compulsive disorder	2.0	3.0	ns	1.5	11.8	.002
Somatoform disorders						
Somatization	0.1	0.0	ns	0.4	2.9	ns
Antisocial personality disorder	3.1	25.8	.0001	3.9	35.3	.001

Fisher's exact test used except as noted:
* $\chi^2 = 31.7$, $df = 1$
† $\chi^2 = 2.04$, $df = 1$

Table 5
Presence or Absence of Disorder among Female Prisoners, by Age

Age	Disorder Present	Disorder Absent	Total
Less than 20 years	4	1	5
20–24	16	14	30
25–29	15	9	24
30–34	14	5	19
35–39	5	5	10
40–44	31	3	6
45 and over	4	2	6
Total	61	39	100

Table 6
Presence or Absence of Disorder among Female Prisoners, by Race

Race	Disorder Present	Disorder Absent	Total
Black	20	13	33
Nonblack	41	26	67
Total	61	39	100

between .5 and 3; hence, age was not associated with presence or absence of disorder. The association of particular disorders with age was not investigated because of the low frequencies.

Race A similar pattern of analysis was applied to assessing the relationship of race to the presence or absence of recent disorder. Table 6 presents the distribution.

The ratio of blacks to nonblacks regardless of presence or absence of disorder, is almost exactly the same as the ratio of blacks to nonblacks in the total population, hence, calculation of χ^2 is superfluous. Race is not associated with six months prevalence of disorder.

Analysis of the relationship of race to

specific types of disorder was done in those instances where there were a sufficient number of observations to warrant such analyses. These disorders were depression, drug abuse, schizophrenia, phobia, antisocial personality, and alcohol abuse. Only in the case of depression was a significant difference found. Of the 33 blacks, two were depressed; of the 67 nonblacks, fifteen were depressed [$\chi^2 = 5.26$; $df = 2$; $p = .02$]. Depression appeared to be associated with nonblacks.

Discussion

The present study demonstrated that female prisoners have a high lifetime and six months prevalence of psychiatric morbidity, specifically, schizophrenia, major depression, substance use disorders, psychosexual dysfunction and antisocial personality disorder. Accumulated research data have indicated[2,9,10] that the high levels of psychopathology among criminals, both male and female, are mostly attributable to high rates of alcoholism, drug dependence and psychopathy. The 29 percent prevalence of antisocial personality in our sample is consistent with the previously reported findings of Cloninger and Guze[2] who found 19 percent uncomplicated sociopathy among 66 females; and Gibbons[10] who reported 21 percent sociopathy among 638 women and girls. Similarly, the prevalence of alcohol and drug abuse disorders is consistent with those reported in the literature. However it is to be noted that 72 percent of the women with alcohol problems and 81 percent who use drugs met the criteria for dependence. Although there is no clinical prognostic significance in differentiating between abuse and dependence,[11] the seriousness of the nature and extent of substance-related problems should be an important management consideration within the prisons.

The finding of disproportionately high prevalence of schizophrenia (7%), major depression (19%) and psychosexual dysfunction (70%) in our group is in contrast with the previously studied criminal cohorts.[1] The combined prevalence of schizophrenia, major depression and bipolar disorder is 28 percent. Using the primary-secondary dichotomy of depression,[12] the three women who had depression only may be classified as having primary depression, whereas others had secondary depression. Nevertheless, the women who also had secondary depression met the DSM-III criteria for major depression. This usually high representation of major mental disorders among convicted women merits attention. Usually, psychiatrically ill criminals were channeled through the mental health system rather than the criminal justice system. Perhaps these disorders were undetected before the adjudication phase; even if a disorder had been diagnosed, that fact might not have been brought out during the trial phase of the criminal proceedings. Less than 1 percent of felons invoke insanity defense. Moreover, since lifetime prevalence addresses only the occurrence of a disorder experienced during any period in the lifetime of a person, it might not have had a specific relationship to the criminal charges. Although a major mental disorder could have been precipitated by the arrest and subsequent incarceration

before adjudication, we do not know in what proportion of our group the disorder had its onset after the arrest and in what proportion the disorder was active earlier and then became inactive.

Several studies have found that female offenders tend to show a high incidence of medical, neurological, menstrual and psychosomatic disorders.[10,13,14] Frank *et al.*[15] found that 63 percent of married women of middle socioeconomic background suffer from some type of psychosexual dysfunction. Therefore, our finding of very high prevalence (70%) of psychosexual symptoms, although coexistent with other psychiatric diagnoses in the vast majority of women suggests significant morbidity in this area.

While schizophrenia, major depression, substance use disorders and antisocial personality disorders are significantly more prevalent in the prison sample compared with the general population, anxiety disorders are not substantially different, with the exception of phobia among 25–44 year old prisoners and obsessive-compulsive disorder among black prisoners. The latter findings are of no major clinical significance.

Whether lifetime occurrence of psychiatric disorders is causally related to female criminality is debatable, although women with a history of psychiatric hospitalization are more likely to be arrested than are women in the general population.[16] The question as to whether psychiatrically ill women are more prone to criminality remains unanswered.

Overall findings of our study support the contention of Roth[17] that there is a need for comprehensive psychiatric services in the prison. Currently, psychiatric services in the United States prisons are either poorly organized or are provided on a hit-and-miss basis. Besides lack of professional resources, failure to identify and refer disturbed prisoners to treatment is reportedly the major obstacle to obtaining adequate services[18]. James *et al.*[18] reported that 78 percent of male prisoners had a diagnosable mental illness; of those, 35 percent required treatment but only 13 percent were referred for treatment. Our data clearly suggest that comprehensive diagnostic and therapeutic services should be made available to all prisoners. Psychopharmacology, group therapy, specialized treatment and rehabilitative services for alcohol and drug disorders, and psychosomatic consultation should be obtained.

The fact that female offenders have a high prevalence of serious and multiple psychopathology suggests that the offender classification system in the prisons must include provisions for reliable and valid screening and diagnosis of mental disorders. The use of standardized interview guide with those prisoners revealed a much higher prevalence of disorder than had been identified in the normal process of classification of the same group. Finally, we believe that there is a great need for systematic longitudinal research into the effect of the prison experience upon the incidence of psychiatric morbidity of the prisoners.

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