A Multisite Study of the Prevalence of Serious Mental Illness, PTSD, and Substance Use Disorders of Women in Jail

Shannon M. Lynch, Ph.D.
Dana D. DeHart, Ph.D.
Joanne E. Belknap, Ph.D.
Bonnie L. Green, Ph.D.
Priscilla Dass-Brailsford, Ed.D.
Kristine A. Johnson, Ph.D.
Elizabeth Whalley, B.A.

Objectives: **This multisite study aimed to answer the following research questions about women in urban and rural jails. First, what is the current and lifetime prevalence of serious mental illness (major depressive disorder, bipolar disorder, and psychotic spectrum disorders) of women in jail? Second, what level of impairment is associated with their serious mental illness? Third, what is the proportion of incarcerated women with serious mental illness who also have posttraumatic stress disorder (PTSD), a substance use disorder, or both?** ***Methods:*** **Participants were 491 women randomly sampled in jails in Colorado, Idaho, South Carolina, and the metropolitan area of Washington, D.C. Structured interviews assessed lifetime and 12-month prevalence of disorders and level of impairment.** ***Results:*** **Forty-three percent of participants met lifetime criteria for a serious mental illness, and 32% met 12-month criteria; among the latter, 45% endorsed severe functional impairment. Fifty-three percent met criteria for ever having PTSD. Almost one in three (29%) met criteria for a serious mental illness and PTSD, 38% for a serious mental illness and a co-occurring substance use disorder, and about one in four (26%) for all three in their lifetime.** ***Conclusions:*** **The prevalence of serious mental illness and its co-occurrence with substance use disorders and PTSD in this multisite sample suggest the critical need for comprehensive assessment of mental health at the point of women's entry into the criminal justice system and the necessity for more programs that offer alternatives to incarceration and that can address the complexity of female offenders' treatment needs. (*Psychiatric Services* 65:670–674, 2014; doi: 10.1176/appi.ps.201300172)**

In 2011, the U.S. Bureau of Justice Statistics reported that women represented 12.6% (approximately 92,800) of adults incarcerated in U.S. jails (1). Furthermore, the rate of incarceration of women has grown notably, with a 31% increase between 2000 and 2011 (1). Consequently, there is increased attention to and research on accurate assessment and identification of effective intervention strategies for incarcerated women.

One consistent finding is incarcerated women's greater prevalence of mental health problems compared with the general population (2,3) and with incarcerated men (4,5). Steadman and colleagues (6) assessed current serious mental illness (including major depressive disorder, bipolar disorder, and schizophrenia and other psychotic disorders) among jail inmates and found prevalence rates of 31% for women and 15% for men. Research with women in jail and in prison has also identified high rates of substance use problems, with approximately 70% reporting difficulties with drugs before incarceration (7,8). Further, growing evidence suggests that female offenders' mental health problems frequently co-occur with substance use disorders (9,10).

In a 2006 Bureau of Justice Statistics special report on mental health of incarcerated adults, 64% of jail inmates reported mental health problems (4). In addition, the individuals with mental health problems indicated higher rates of substance use and greater incidence of past physical and sexual abuse compared with inmates without mental health problems (4). Other researchers also have

Dr. Lynch is with the Department of Psychology, Idaho State University, Pocatello (e-mail: lyncshan@isu.edu). Dr. DeHart is with the College of Social Work, University of South Carolina, Columbia. Dr. Belknap and Ms. Whalley are with the Department of Sociology, University of Colorado, Boulder. Dr. Green and Dr. Dass-Brailsford are with the Department of Psychiatry, Georgetown University, Washington, D.C. Dr. Johnson is with the Geneva Foundation, Tacoma, Washington.

noted high rates of interpersonal trauma and associated symptoms of posttraumatic stress disorder (PTSD) among female offenders (7–9). Salina and colleagues (9) identified PTSD as the most common axis I disorder among 283 female offenders participating in a jail-based treatment diversion program. Taken together, these findings suggest the potential for many female offenders in jail to be struggling with substantial mental health concerns, including serious mental illness, substance use disorders, and PTSD.

Individuals with co-occurring behavioral disorders generally have more complex treatment needs and less positive outcomes than those with simpler presentations (11). In addition, researchers have noted the importance of assessing impairment associated with these substantial mental health problems, given that impairment can affect functioning and behavior during incarceration as well as the need for treatment (6). Within jail facilities, inmates with mental illnesses are twice as likely to be charged with rule violations and four times as likely to be charged with assault on a correctional officer or another inmate (4). Furthermore, incarcerated individuals with specific disorders (such as major depressive disorder and psychotic disorders) are more likely than individuals with other disorders or individuals without mental illness to engage in activities resulting in violent or nonviolent infractions (11). Thus assessment for specific disorders has implications both in regard to meeting treatment needs of incarcerated individuals as well as addressing the safety of corrections staff and other offenders.

In summary, large-scale studies have provided evidence of mental health problems in representative, national samples of offenders but have relied on brief symptom measures (4,12). Research utilizing structured diagnostic interviews has been limited to facilities in one geographic area, predominantly the Northeast (5–7,10). Very few studies have assessed impairment associated with inmates' disorders. We identified no studies with inmates that utilized diagnostic interviews and a standardized multiitem assessment of functioning. At this time, given the high rates of specific mental health problems among incarcerated women, an important next step is to use structured diagnostic interviews to assess the extent to which female offenders experience serious mental illness, substance use disorders, and PTSD and associated functional impairment across multiple geographic regions to better inform national intervention and rehabilitation efforts.

This study aimed to answer the following research questions. First, what is the current (past 12 months) and lifetime prevalence of serious mental illness (including major depressive disorder, bipolar disorder types I and II, schizophrenia spectrum disorders, and other psychotic and delusional disorders) across a sample of female offenders in urban and rural jails in four regions of the United States? Second, what is the level of impairment associated with these disorders? Third, given the high rates of interpersonal trauma experienced by incarcerated women, to what extent do women in jail meet criteria for PTSD, and what is the rate of cooccurrence of serious mental illness with PTSD and with substance use disorders?

Methods

Participants

A total of 491 preconviction (51%) and postconviction (49%) women in jails in Colorado, Idaho, metropolitan Washington, D.C. (Maryland and Virginia), and South Carolina participated in structured diagnostic interviews. Interviews were conducted at nine jails across the four regions between June 2011 and March 2012. Facilities ranged in size, housing from 25 to 300 women. Forty-three percent (N=211) of the participants were housed in jails in rural or nonmetropolitan, low-population areas.

The women ranged in age from 17 to 62, with a mean±SD age of 35.00± 10.65. Most (75%, N=369) had children under the age of 18. Before their incarceration, 33% (N=162) were employed full-time, whereas 46% (N=228) were unemployed. Approximately one-quarter reported attending some high school (26%, N=129), one-third had completed high school or obtained their GED (34%, N=165), and 36% (N=178) reported attending at least some college. Women endorsed the following ethnic identities: white or Caucasian (38%, N=184), African American or black (37%, N=183), Latina (15%, N=74), American Indian (4%, N=21), and other (6%, N=29). One-quarter (25%, N=119) were first-time offenders, and 16% (N=79) were charged with or convicted of a violent crime (including assault, battery, nonprostitutional sex offense, manslaughter, or homicide). One in five participants was incarcerated for two weeks or less (20%, N=98), and 49% (N=242) were incarcerated for fewer than five weeks at the time of the interview.

Measures

The Composite International Diagnostic Interview (CIDI) is a structured interview widely used by nonclinician interviewers (13). Interviewers are trained and supervised on how to proceed through the interview (how to follow skip patterns in questioning), but the interview is structured to eliminate the need for clinical judgments, thus allowing use across disciplines. The CIDI assesses lifetime and 12-month criteria. Several national prevalence studies have utilized the CIDI, allowing comparisons of prevalence rates between incarcerated and nonincarcerated populations.

The CIDI paper-and-pencil (PAPI version 7) modules for major depressive disorder, bipolar disorder, PTSD, and substance use disorders were used in this study. The CIDI screening items for serious mental illnesses (major depressive disorder, bipolar disorder, and schizophrenia spectrum disorders) were administered to all participants, and corresponding modules were administered to participants who screened positively. The PTSD and substance use disorders modules were administered to all participants. The CIDI has extensive screening items for psychotic spectrum disorders but does not have a module to assess all relevant criteria. Thus participants who screened positively on the CIDI psychotic items also were administered an adapted version of the psychotic disorders module of the Structured Clinical Interview for DSM disorders (SCID-I), Research Version, to assess schizophrenia,

schizophreniform, or schizoaffective disorder (labeled in this study as schizophrenia spectrum disorders) (14). Adapted items included assessment of delusional thinking and observations of grossly inappropriate affect or behavior as well as items to assess duration of symptoms and overlap in mood and psychotic symptoms and to rule out psychosis attributable to other conditions.

Items from the Sheehan Disability Scale (15) are integrated into each CIDI module to assess impairment. Participants who endorsed problems in the past year within a particular module (depression, for example) were then asked to indicate the extent to which those problems, when at their worst in the past 12 months, interfered with their functioning on a scale of 0 to 10, where a 0 indicated no interference in functioning; 1–3, mild interference; 4–6, moderate interference; 7–9, severe interference; and 10, very severe interference. Participants indicated degree of functional impairment in their home management (including grocery shopping and cleaning), ability to work, ability to form and maintain close relationships, and social life. Average current impairment across areas is reported in this study.

Procedures

Interviewers received extensive training and supervision, beginning with a DVD that demonstrated interview administration for standardization purposes across sites. Interviewers also had the opportunity to watch an experienced investigator conduct an interview and to be observed interviewing. Supervision occurred within and across sites through regular meetings. Institutional review board (IRB) approval was obtained from each academic institution and from jail or community IRBs as needed. Lists of inmate names were obtained from participating facilities and updated regularly throughout data collection. Offenders were randomly selected, called out, and invited to participate in a study of women's pathways to jail, mental health, and life experiences. Inmates who were unavailable at the time their name was selected were invited on the subsequent interview date to participate in the study. Inmates who declined were removed from lists. Once informed consent to participate was obtained, we conducted interviews in private, enclosed rooms. Compensation for the interview varied by jail because of local regulations and included a snack, $10 deposited into the individual's commissary account, or funds applied toward the purchase of materials for inmates' use (such as for self-help books). Interviews lasted from one hour to six hours, or a mean±SD of 1.95±.91 hours.

Women who declined to participate (N=142 out of 633) did not differ from participants by age or offense type (violent versus nonviolent offense). Women who declined differed significantly by ethnicity. Individuals who identified themselves as African American (79% accepted) or Latina (85% accepted) participated at rates similar to whites (75% accepted) and at significantly higher rates than the small number of randomly selected American Indians (53% accepted). Also, individuals in the two jails where compensation was limited to a donation to a general fund declined at significantly higher rates (50%). A total of 15 women were excluded from the study: five were excluded because of threat of violence toward others, and five more were excluded because of acute distress at the time of the invitation to interview. Finally, an additional five were excluded because of IRB restrictions in one of the four regions prohibiting interviews with pre-sentence offenders charged with homicide, first-degree assault, or felony sex charges. Although this restriction was in place, it is important to note that overall participation by individuals who committed violent crimes was not lower in this region.

Results

Prevalence of disorders

The prevalence of mental disorders in the full sample was high; 91% (N=446) met lifetime criteria, and 70% (N=343) met 12-month or current criteria for at least one disorder. Notably, 43% met lifetime and 32% met current criteria for a serious mental illness (Table 1), including major depressive disorder (28% lifetime, N=137; 22% current, N=109), bipolar disorder (15% lifetime, N=71; 8% current, N=41) and schizophrenia spectrum disorders (4% lifetime, N=21). Substance use disorders were the most commonly occurring lifetime (82%) and current disorders (53%). Lifetime and current PTSD rates also were high (53% and 29%, respectively).

There were no significant differences in serious mental illness, PTSD, or substance use disorders among participants in rural and urban locations. There also were few differences among individuals in different jails within the same regions (Table 1). In contrast, there were significant regional differences, with participants in the metropolitan D.C. area meeting criteria for serious mental illness significantly less frequently than those in Idaho and Colorado (χ^2=17.13, df=3, p<.001). Idaho participants also met criteria for PTSD (χ^2=24.82, df=3, p<.001) and a substance use disorder (χ^2=16.57, df=3, p<.001) significantly more often than participants in the metropolitan D.C. area. Although it is not possible to determine with certainty the reason for these regional differences, our findings are similar to those from a recent national study. A 2011 Substance Abuse and Mental Health Services Administration report assessed serious mental illness rates by state and found 12-month rates of 5.8% in Idaho, 5.2% in Colorado, 4.1% in South Carolina, 3.9% in Maryland, and 3.6% in Virginia (15). In particular, that report notes that Idaho residents reported among the highest rates of serious mental illness in the country, whereas residents of Maryland and Virginia were among those reporting the lowest rates nationwide.

Functional impairment

Participants attributed notable impairment in functioning in the past 12 months to mental health and substance use problems. For 152 participants who indicated problems associated with their serious mental illness in the past year, the average impairment was rated 6.21±2.81. However, 45% of these participants (N=68) rated their average impairment

a 7 or higher, suggesting severe levels of impairment. Similarly, for 130 individuals who endorsed problems as a result of PTSD symptoms in the past year, the mean rating was 6.17±2.65, whereas 42% of these participants (N=55) reported an average of 7 or greater functional impairment. Finally, 30% (N=79) of the 263 individuals who reported difficulties associated with substance use in the past year indicated severe problems in functioning, whereas the average impairment in functioning was 4.94±3.37.

Comorbidity

Many of the incarcerated women met criteria for multiple disorders. Lifetime rates of comorbidity were high: 29% (N=142) met criteria for lifetime serious mental illness and PTSD, 38% (N=187) met criteria for lifetime serious mental illness and a co-occurring substance use disorder, and about one in four (26%, N=127) met criteria for all three in their lifetime. In the past 12 months, 20% (N=98) of participants met criteria for a substance use disorder and serious mental illness, 14% (N=70) of participants met criteria for both PTSD and a serious mental illness, and 9% (N=45) met criteria for all three. Finally, 46% (N=225) of the sample met criteria for lifetime PTSD and a substance use disorder, whereas 18% (N=90) met criteria for both in the past 12 months.

Table 1

Prevalence of lifetime and 12-month serious mental illness, PTSD, and substance use disorders among 491 female offenders, by region and jail[a]

Disorder and jail location	Total N	Lifetime N	Lifetime %	Lifetime χ^2	Lifetime df	12 month N	12 month %	12 month χ^2	12 month df
Serious mental illness		210	43	17.13*	3	155	32	18.33*	3
Colorado (metro area jail)	203	100	49			77	38		
Idaho	110	55	50	1.53	2	43	39	1.77	2
Rural jail 1	29	12	41			9	31		
Rural jail 2	58	32	55			26	45		
Nonmetro jail	23	11	48			8	35		
South Carolina	84	30	36	1.31	2	15	18	1.38	2
Rural jail	21	7	33			2	10		
Metro jail	47	19	40			10	21		
Nonmetro jail	16	4	25			3	19		
Metro D.C.	93	25	27	.01	1	20	22	.17	1
Rural jail	64	17	27			13	20		
Metro jail	29	8	28			7	24		
PTSD		259	53	24.82*	3	139	28	22.21*	3
Colorado (metro jail)	203	111	55			66	33		
Idaho	110	77	70	.69	2	42	38	1.76	2
Rural jail 1	29	22	76			12	41		
Rural jail 2	58	39	67			19	33		
Nonmetro jail	23	16	70			11	48		
South Carolina	84	33	40	.06	2	8	10	4.70	2
Rural jail	21	8	38			3	14		
Metro jail	47	19	40			3	6		
Nonmetro jail	16	6	38			2	13		
Metro D.C.	93	38	41	10.60*	1	23	25	12.55*	1
Rural jail	64	19	30			9	14		
Metro jail	29	19	66			7	48		
Substance use disorders		402	82	16.57*	3	259	53	7.25	3
Colorado (metro jail)	203	167	82			111	55		
Idaho	110	102	93	2.37	2	67	61	.45	2
Rural jail 1	29	26	90			19	66		
Rural jail 2	58	53	91			35	60		
Nonmetro jail	23	23	100			13	57		
South Carolina	84	67	80	8.33*	2	36	43	4.07	2
Rural jail	21	16	76			10	48		
Metro jail	47	42	89			23	49		
Nonmetro jail	16	9	56			3	19		
Metro D.C.	93	66	71	.08	1	45	45	.78	1
Rural jail	64	46	72			29	45		
Metro jail	29	20	69			16	55		

[a] Metropolitan-area jails are in urban areas with population centers of >50,000 and a population density of >1,000 people per square mile. Nonmetropolitan-area jails are in areas with population centers of 2,500–50,000. Rural jails are in areas with <500 people per square mile.

*p<.01

Discussion

Our multisite sample of women in urban and rural jails in four regions of the United States demonstrated high rates of lifetime diagnoses of serious mental illness and PTSD or a substance use disorder alone or in combination. Notably, there were no differences in the rates of these disorders in urban versus rural locations, although there were significant regional differences, with participants in the western regions reporting higher rates. This pattern is similar to differences identified in a recent report of state-by-state comparisons of serious mental illness (16).

Similar to Steadman and colleagues' (6) finding that 31% of female inmates in northeastern jails met criteria for a current serious mental illness, approximately one-third (32%) of participants in this multisite study met criteria for a serious mental illness in the past year. Further, like Trestman and colleagues' (5) report that 56% of a large sample of women in jail experienced multiple lifetime disorders, in this study that assessed a more limited range of disorders, almost half (46%) of the sample met criteria for lifetime PTSD and co-occurring substance use disorders, whereas more than one in three met criteria for lifetime serious mental illness and a substance use disorder and about one in four met criteria for all three in their lifetime. Perhaps most critical to consider are those with concurrent 12-month disorders: 20% of participants met criteria for a current serious mental illness and substance use disorder, 14% met criteria for both a current serious mental illness and PTSD, and almost one in ten met criteria for all three in the past 12 months.

The rates of major depressive disorder, bipolar disorder, substance use disorder, and PTSD in this sample were 1.4 to 5.0 times higher than rates

obtained from women in the general population as assessed in the National Comorbidity Survey Replication study in 2005 (17). In particular, the lifetime prevalence of PTSD is 9.7% for women in the general population, compared with 53% of this sample. Similarly, the lifetime prevalence of any substance use disorder is 29% for women in the general population, compared with 82% in this sample.

Many of the women who met criteria for a lifetime disorder also reported severe functional impairment in the past year. One in three women who reported symptoms of a substance use disorder, and 40%–45% of female offenders who reported problems associated with a serious mental illness or PTSD, indicated that they experienced serious interference in their ability to work, manage their homes, and maintain relationships. These impairment rates highlight the need for thorough mental health screening and assessment that can detect not only symptoms of disorders, but also their impact on functioning. This information will allow better identification of offenders' treatment needs, as well as highlight potential safety risks to other offenders and staff.

It is important to note limitations to this study. Because of time constraints, we did not assess personality disorders and many anxiety disorders that can contribute to severe impairments in functioning. Further, to address gaps in assessment of psychotic disorders in the CIDI, we adapted items from the SCID-I psychotic module. Finally, women in the two jails that did not allow us to provide participants with direct compensation (either $10 deposit to their commissary account or toward snacks) declined at rates as high as 50%. However, multiple jails in each of these states were sampled, and thus these different participation rates are not region specific.

Conclusions

The prevalence of serious mental illnesses and their co-occurrence with substance use disorders and PTSD in this large, representative sample of women in jail suggests the critical need for comprehensive assessment of mental health and impairment level at the point of women's entry into the criminal justice system and for increasing alternatives to incarceration, such as mental health and drug courts, and for programs that can address women's treatment needs. In order to interrupt the cycle of reoffending, these data also highlight the importance of providing a continuum of care (including access to medication and mental health treatment and service coordination) during and after incarceration.

Acknowledgments and disclosures

This study was funded by grant 2010-DB-DBX-K048 from the Bureau of Justice Assistance, U.S. Department of Justice. Points of view expressed in this article are those of the authors and do not necessarily represent the official position or policies of the U.S. Department of Justice. Many people contributed to the success of this project, including interviewers Jemima Anglade, Alina Bonci, Porschia Brown, Toyin Falebita, Pat Heiber, Kelsie Hendrickson, Ania Hornberger, Alejandra Hurtado de Mendoza, Beena Kuruvilla, Andrea Lamont, Kathrine Martinez, Anjali Nandi, Kathryn Nowotny, Sarah Rowland, Adriana Serrano, and Emily Van Ness.

The authors report no competing interests.

References

1. Minton TD: Jail Inmates at Midyear 2011—Statistical Tables. Pub no NCJ 237961. Washington, DC, US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, 2012
2. Bloom B, Owen B, Covington S: Gender Responsive Strategies: Research, Practice and Guiding Principles for Women Offenders. Pub no NIC 018017. Washington, DC, US Department of Justice, National Institute of Corrections, 2003
3. Diamond PM, Wang EW, Holzer CE, III, et al: The prevalence of mental illness in prison. Administration and Policy in Mental Health and Mental Health Services Research 29:21–40, 2001
4. James DJ, Glaze LE: Mental Health Problems of Prison and Jail Inmates. Pub no NCJ 213600. Washington, DC, US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, 2006
5. Trestman RL, Ford J, Zhang W, et al: Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. Journal of the American Academy of Psychiatry and the Law 35:490–500, 2007
6. Steadman HJ, Osher FC, Robbins PC, et al: Prevalence of serious mental illness among jail inmates. Psychiatric Services 60: 761–765, 2009
7. Green BL, Miranda J, Daroowalla A, et al: Trauma exposure, mental health functioning and program needs of women in jail. Crime and Delinquency 51:133–151, 2005
8. Lynch SM, Fritch A, Heath NM: Looking beneath the surface: the nature of incarcerated women's experiences of interpersonal violence, treatment needs, and mental health. Feminist Criminology 7: 381–400, 2012
9. Salina D, Lesondak LM, Razzano LA, et al: Co-occurring mental disorders among incarcerated women: preliminary findings from an integrated health treatment study. Mental Health Issues in the Criminal Justice System 10:207–225, 2007
10. Abram KM, Teplin LA, McClelland GM: Comorbidity of severe psychiatric disorders and substance use disorders among women in jail. American Journal of Psychiatry 160:1007–1010, 2003
11. Goldsmith RJ: Overview of psychiatric comorbidity: practical and theoretic considerations. Psychiatric Clinics of North America 22:331–349, ix, 1999
12. Felson RB, Silver E, Remster B: Mental disorder and offending in prison. Criminal Justice and Behavior 39:125–143, 2012
13. Composite International Diagnostic Interview. Geneva, World Health Organization, 1990
14. First MB, Spitzer RL, Gibbon M, et al: Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-Patient Ed (SCID-I/NP). New York, New York State Psychiatric Institute, Department of Biometrics Research, 2002
15. Leon AC, Olfson M, Portera L, et al: Assessing psychiatric impairment in primary care with the Sheehan Disability Scale. International Journal of Psychiatry in Medicine, 27(2):93–105, 1997
16. The NSDUH Report: State Estimates of Adult Mental Illness. Rockville, Md, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, 2011
17. National Comorbidity Study–Replication: Lifetime Prevalence Rates of DSM-IV/WMH-CIDI disorders by sex and cohort. Cambridge, Mass, Harvard Medical School, 2005. Available at www.hcp.med.harvard.edu/ncs/