Serious mental disorder in 23 000 prisoners: a systematic review of 62 surveys

Seena Fazel, John Danesh

Summary

Background About 9 million people are imprisoned worldwide, but the number with serious mental disorders (psychosis, major depression, and antipsychotic personality disorder) is unknown. We did a systematic review of surveys on such disorders in general prison populations in western countries.

Methods We searched for psychiatric surveys that were based on interviews of unselected prison populations and included diagnoses of psychotic illnesses or major depression within the previous 6 months, or a history of any personality disorder. We did computer-assisted searches, scanned reference lists, searched journals, and corresponded with authors. We determined prevalence rates of serious mental disorders, sex, type of prisoner (detainee or sentenced inmate), and other characteristics.

Findings 62 surveys from 12 countries included 22 790 prisoners (mean age 29 years, 18 530 [81%] men, 2568 [26%] of 9776 were violent offenders). 3-7% of men (95% CI 3-3-4-1) had psychotic illnesses, 10% (9-11) major depression, and 65% (61-68) a personality disorder, including 47% (46-48) with antisocial personality disorder. 4-0% of women (3-2-5-1) had psychotic illnesses, 12% (11-14) major depression, and 42% (38-45) a personality disorder, including 21% (19-23) with antisocial personality disorder. Although there was substantial heterogeneity among studies (especially for antisocial personality disorder), only a small proportion was explained in prevalence rates between detainees and sentenced inmates. Prisoners were several times more likely to have psychosis and major depression, and about 10 times more likely to have antisocial personality disorder, than the general population.

Interpretation Worldwide, several million prisoners probably have serious mental disorders, but how well prison services are addressing these problems is not known.

Lancet 2002; 359: 545-50

ARTICLES
review) geographical location, year of interview, number of prisoners interviewed, sampling method, type of prisoner (detainee or sentenced inmate), response rate, diagnostic instruments and criteria, type of interviewer, number diagnosed with relevant disorders, mean age, proportion male, number charged with violent offences, and mean duration of imprisonment at time of interview. Psychotic illnesses included mainly schizophrenia but also schizotypal, depressive illness, or schizotypal personality disorder: the Diagnostic Interview Schedule,5,7,9,24,27,29,31,34,35,37,45,56-59,61,62,65 Structured Clinical Interview Schedule, 6,8,11,28,46,53 Present State Examination, but in most studies trained interviewers had various combinations of such strategies (274).1,10,45 Apart from seven studies that included only 13% (2876 prisoners) of the total sample,11,12,46-50 the reported response rates were higher than 80%; in five11,12,46,47 of the seven surveys with lower participation rates, rates were still higher than 65%.

In some studies, diagnoses of psychotic illnesses and major depression were based solely on clinical examination, but in most studies trained interviewers had made diagnoses using validated questionnaires. For psychotic illnesses and depression, the instruments included: Diagnostic Interview Schedule,5,7,24,29,32,34,35,37,47,52,60 Composite International Diagnostic Interview,10,20,55 Structured Clinical Interview for the Diagnostic and Statistical Manual,20,31,32,50,52,66 Clinical Interview Schedule,4,9,10,24,29,32,34,35,37,47,52,60 Present State Examination,10,15,60 Schedule for Affective Disorders,26 Diagnostic Interview for Children and Adolescents—Adolescent Version,26 and Schedule for Clinical Assessment in Neuropsychiatry.1 The following validated questionnaires were used by interviewers in studies of personality disorder: the Diagnostic Interview Schedule,5,7,24,29,32,34,35,37,47,52,60 Structured Clinical Interview for Diagnostic and Statistical Manual Personality Disorders1,4,8,9,46,60 Personality Disorder
Questionnaire,”10 and Personality Disorder Examination.”67 There was generally no substantial heterogeneity within groupings of studies with fewer than 250 prisoners, and most studies reported insufficient detail to enable reliable assessments of the extent of psychiatric comorbidity.

Psychotic illnesses
49 relevant surveys on psychotic illnesses included a total of 19 011 prisoners.12,13,20–22,24,29–31,34,35,37,39,42,43,54,55. Overall, there was substantial heterogeneity among these studies (χ² = 68, p < 0.0001), and only a small part of it was explained by possible differences between studies that used validated diagnostic instruments and those that did not (3–5 vs 4–3%, respectively; χ² = 6–2, p = 0.01). There were significant differences between studies done in the USA and those done elsewhere (4–5 vs 3–3%, respectively; χ² = 13–7, p = 0.0002). Overall, 4–0% (3–2–5–1, figure 1)—or 119 of 2964 female prisoners—were diagnosed with a psychotic illness. There was no significant heterogeneity between these studies (χ² = 7–1, p > 0.10).

Major depression
We identified 31 relevant surveys that reported on major depression including a total of 10 529 prisoners.12,13,20,21,22,23,24,26,29–31,34,35,37,39,42,43,45,47–50,54–57,71–73. Overall, 10% (9–11, figure 2)—or 743 of 7631 male prisoners—were diagnosed with major depression. There was substantial heterogeneity between these studies (χ² = 64, p < 0.0001), and this was only partly explained by differences between detainees and sentenced prisoners (9 vs 11%, respectively; χ² = 10–0, p = 0.0002), between studies in which interviews were done by psychiatrists or not (7 vs 10%, respectively; χ² = 14–2, p = 0.0002), and between larger and smaller studies (9 vs 11%, respectively; χ² = 6–2, p = 0.008). Overall, 12% (11–14, figure 2)—or 350 of 2898 female prisoners—were diagnosed with major depression. Again, there was no significant heterogeneity between these studies (χ² = 7–0, p > 0.10).

Personality disorder
We identified 28 relevant surveys that reported on antisocial personality disorder including a total of 13 844 prisoners.11,12,13,15–17,19,21,22,23,24,26,29–31,34,35,37,39,42,43,45,47–50,52,54–57,69. Overall, 47% (46–48, figure 3)—or 5113 of 10 797 male prisoners—were diagnosed with antisocial personality disorder. There was substantial heterogeneity between these studies (χ² = 438, p < 0.0001), and this was partly explained by differences between studies done in the

![Figure 2: Prevalence of major depression in 31 prison surveys](image1)

![Figure 3: Prevalence of antisocial personality disorder in 28 prison surveys](image2)
USA and those done elsewhere (43 vs 52%, respectively; \( \chi^2 = 93, p < 0.0001 \)). In a subsidiary analysis of the four studies in which investigators reported on any personality disorder in men, 65% (61–68)—or 989 of 1529 male prisoners—were diagnosed with some personality disorder (including antisocial personality disorder).\(^{5,6,10,64,66}\) Overall, 21% (19–23, figure 3)—or 631 of 3047 female prisoners—were diagnosed with antisocial personality disorder. There was substantial heterogeneity between these studies (\( \chi^2 = 285, p < 0.0001 \)), much of which was accounted for by differences between larger and smaller studies (13 vs 37%, respectively; \( \chi^2 = 236, p < 0.0001 \)) and between studies done before and after 1990 (39 vs 17%, respectively; \( \chi^2 = 125, p < 0.0001 \)). There were also differences between studies done in the USA and those done elsewhere (18 vs 33%, respectively; \( \chi^2 = 64, p < 0.0001 \)) and between studies in which interviews were done by psychiatrists or not (42 vs 19%, respectively; \( \chi^2 = 67, p < 0.0001 \)). In a subsidiary analysis of the seven studies in which investigators reported on any personality disorder in women, 42% (38–45)—or 532 of 1281 female prisoners—were diagnosed with some personality disorder (including antisocial personality disorder).\(^{10,12,15,50,56,60,69}\) In the five studies in which borderline personality disorder was reported, this diagnosis was made in 25% (22–29)—or 307 of 1208—female prisoners.\(^{10,56,63,69}\)

**Discussion**

Our results suggest that typically about one in seven prisoners in western countries have psychotic illnesses or major depression (disorders that might be risk factors for suicide),\(^{14}\) and about one in two male prisoners and about one in five female prisoners have antisocial personality disorders. These findings might have several implications.

First, they indicate that the risks of having serious psychiatric disorders are substantially higher in prisoners than in the general population. Compared with the general American\(^{5,6}\), or British\(^{6}\), population of similar age, prisoners have about two-fold to four-fold excesses of psychotic illnesses and major depression, and about a ten-fold excess of antisocial personality disorder. More research is needed to elucidate to what extent these excesses are causes, consequences, or both, of imprisonment (for example, the effect of substance abuse on the prevalence of psychosis in prisoners is not known).

Second, our findings suggest that the burden of treatable serious mental disorder in prisoners is substantial. For example, application of these typical prevalence rates to the prison population of the USA might, therefore, have been expected to vary substantially as a result of such differences, as well as because of differences in medical and judicial systems and in survey methods. But, although we noted that estimates of prevalence of antisocial personality disorder varied considerably, there was much less variation in psychotic illnesses and major depression (perhaps, in part, because of greater diagnostic consensus for these two disorders). Despite the likelihood that there are some real differences in the prevalence of psychiatric disorders in different prison circumstances, our summary estimates can help inform public policy and public health initiatives, particularly in areas where reliable local information is lacking.

Since a few million prisoners worldwide probably have serious mental disorders (including several hundreds of thousands with potentially treatable psychosis or depression), the ability of prison health services in some countries to address these problems may well require review.

**Contributors**

S Fazel and J Danesh drafted the report and were involved in study design, conduct, analysis, and interpretation.

**Conflict of interest statement**

None declared.

**Acknowledgments**

J Coid, M Fazel, R Husley, C Meux, and G Whitchlor gave helpful comments. P Appleby plotted the figures. E Blauw, S Doostdar, M Grann, M Hughes, O Pickering, I Sieracka, B Vollim, and Zhenming Chen assisted with translations. The following investigators kindly provided additional data from their studies: S Agabahwe, H Andersen, L Birmingham, R Bland, G Cote, M Davidson, B Denton, R Ghubash, J Haapala, H Hermann, W Hurley, K Jordan, M Joukamaa, T Maden, D Mohan, B Morenini, W Narrow, K Northrup, T Powell, K Rasmussen, C Schoemaker, N Singleton, C Smith, and G Walters. S Fazel was supported by a grant from the Wellcome Trust. J Danesh was supported by the Frohlich Trust, a Merton College fellowship, and the Raymond and Beverly Sackler Research Award in the Medical Sciences.

**References**


12 Andersen J, Sestoft D, Lillevaek T, Gabrielsen G, Kramp P.


