

Mental disorders in prison populations aged 15-21: national register study of two cohorts in Finland

Eila S Sailas, Benjamin Feodoroff, Matti Virkkunen, Kristian Wahlbeck

Juvenile delinquency is linked to psychiatric morbidity.^{1 w1-w9} We were interested in temporal changes in psychiatric morbidity in offenders. Criminal policy in many Western countries emphasises the need for alternative methods of punishment for adolescent prisoners.² In Finland, successful policy to diminish the number of adolescents in prisons has been internationally recognised.³ We studied the changes in psychiatric hospitalisations in Finnish prisoners aged 15 to 21 to see whether a selection process occurs as the number of young prisoners decreases.

Participants, methods, and results

We linked the unique personal identification numbers of all prisoners aged 15 to 21 years from 1984-5 and 1994-5 to the Finnish healthcare register, which includes data of all hospitalisations in Finland. We retrieved occurrences of depression, psychosis, personality disorder, and substance dependence, and we analysed temporal changes. The observation period for the first cohort was 1980-9 and for the second 1990-9. We compared hospitalisations with those of a control group, matched for sex, age, and place of birth, derived from the population register. The full method is on bmj.com.

The earlier cohort from 1984-5 comprised 656 prisoners (719 with 63 (8.8%) missing identification numbers), and the later cohort included 370 prisoners (377, with 7 (1.9%) missing identification numbers). This temporal decrease shows the effect of the policy to reduce the number of young prisoners. The cohorts did not differ in terms of sex (Fisher's exact test, $P=0.19$); in the earlier cohort there were 18 (0.03%) women, in the later 5 (0.01%).

The number of inmates with at least one hospital treatment for any mental disorder increased significantly (odds ratio 1.8, 95% confidence interval 1.3 to 2.3, age adjusted) over time compared with the general population, in which we detected no increase in hospitalisations for mental disorders (1.0, 0.7 to 1.4; table). The increase in treatment for psychosis was significant between the two cohorts (2.7, 1.4 to 5.1, age adjusted) and it was significant for substance dependence (3.0, 2.0 to 4.6, age

What is already known on this topic

Prisoners are more likely to have serious mental disorders than the general population, and efforts have been made to reduce the number of young prisoners

What this study adds

More mentally ill young people end up in prison as the prison population diminishes

adjusted). In the control groups the changes in prevalence of these disorders were not significant (1.6, 0.7 to 3.5 and 0.9, 0.3 to 3.0).

The absolute number of prisoners who had had inpatient treatment for psychosis or substance dependence increased from the earlier to the later cohort. The odds of being hospitalised for schizophrenia in the earlier prisoner group was fourfold greater (3.9, 1.6 to 9.4) than in the control group but was eightfold greater (8.0, 2.7 to 23.5) in the later cohort.

Comment

Relatively more mentally ill people end up in prisons as the prison population diminishes. Hospitalisations of young prisoners for mental disorders increased during the 10 year period separating the two study cohorts. We did not detect a similar increase in the matched general population sample. Young prisoners had considerably more inpatient treatments for mental disorders than did the controls. The most alarming finding is the increase of psychoses in the more recent group. This cannot be explained by changes in the population morbidity, as the number of hospitalisations for psychotic disorders in the general population control group decreased, as seen before.⁴



The full method and references w1-w9 are on bmj.com

Young prisoners and controls with psychiatric hospital treatments, Finland, 1984-5 and 1994-5

Mental disorder	Cohort 1984-5, follow-up 1980-9			Cohort 1994-5, follow-up 1990-9		
	No (%)		Odds ratio (95% CI)	No (%)		Odds ratio (95% CI)
Prisoners (n=656)	Controls (n=2528)	Prisoners (n=370)		Controls (n=1444)		
Psychosis	17 (2.6)	22 (0.9%)	3.03 (1.60 to 5.74)	24 (6.5)	8 (0.6)	12.45 (5.55 to 27.95)
Depression	23 (3.5)	21 (0.8%)	4.34 (2.39 to 7.89)	13 (3.5)	9 (0.6)	5.81 (2.46 to 13.69)
Personality disorder	110 (16.8)	25 (1.0%)	20.17 (12.94 to 31.45)	63 (17.0)	11 (0.8)	26.73 (13.93 to 51.32)
Substance dependence	39 (5.9)	8 (0.3%)	19.91 (9.26 to 42.82)	59 (15.4)	5 (0.3)	54.60 (21.74 to 137.16)
Any mental disorder	217 (33.1)	112 (4.4%)	10.66 (8.31 to 13.69)	172 (46.5)	64 (4.4)	18.73 (13.56 to 25.89)

Our findings reflect the failure of healthcare systems and emphasise the necessity for early screening of mental disorders in delinquents.

Contributors: ESS conceived the study. ESS and BF collected the data. ESS, BF, and KW analysed the data and drafted the paper. KW supervised and coordinated the research. MV discussed the data and supervised the research. ESS is guarantor.

Funding: Supported by a grant from Finska Läkaresällskapet and done as a part of the Merttu-project of the Finnish Academy of Finland (Grant 105218).

Competing interests: None declared.

Ethical approval: Criminal Sanctions Agency, Ministry of Social Affairs and Health, and the department of psychiatry, Helsinki University Central Hospital.

1 Teplin LA, Abram KM, McClelland GM, Dulcan MK, Mericle AA. Psychiatric disorders in youth in juvenile detention. *Arch Gen Psychiatry* 2002;59:1133-43.

2 Tonry M. *Penal reform in overcrowded times*. Oxford: Oxford University Press, 2001.
3 Lappi-Seppälä T. *Regulating the prison population: experiences from a long-term policy in Finland*. Helsinki: National Research Institute of Legal Policy, 1998. (Research communications 38/1998.)
4 Suvisaari JM, Haukka JK, Tanskanen AJ, Lonnqvist JK. Decline in the incidence of schizophrenia in Finnish cohorts born from 1954 to 1965. *Arch Gen Psychiatry* 1999;56:733-40.

(Accepted 9 February 2005)

doi 10.1136/bmj.38415.633762.F7

STAKES, National Research and Development Centre for Welfare and Health,
PO Box 220, 00531 Helsinki, Finland

Eila S Sailas *medical doctor*

Benjamin Feodoroff *bachelor of medicine*

Vaasa Central Hospital, Psychiatric Unit, 65130 Vaasa, Finland

Kristian Wahlbeck *professor*

Helsinki University Central Hospital, PO Box 320, 00029 HUCH, Finland

Matti Virkkunen *professor*

Correspondence to: E S Sailas eila.sailas@stakes.fi